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STATE OF ILLINOIS
HENRY HORNER, *Governor*
DEPARTMENT OF REGISTRATION AND EDUCATION
DIVISION OF THE
STATE GEOLOGICAL SURVEY
M. M. LEIGHTON, *Chief*

REPORT OF INVESTIGATIONS—NO. 43

ILLINOIS MINERAL INDUSTRY IN 1935

A Preliminary Statistical Summary and
Economic Review

J. S. MACHIN

BY

WALTER H. VOSKUIL, ALMA R. SWEENEY AND W. A. NEWTON



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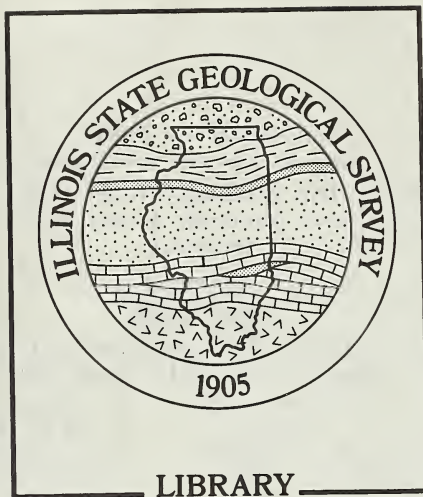
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ILLINOIS STATE GEOLOGICAL SURVEY



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ILLINOIS MINERAL INDUSTRY IN 1935

A PRELIMINARY STATISTICAL SUMMARY AND ECONOMIC REVIEW

WALTER H. VOSKUIL, ALMA R. SWEENEY AND W. A. NEWTON

INTRODUCTION

THIS REPORT, which presents the fundamental statistics in the distribution and consumption of the major mineral products of the State, is made possible through the cooperation of the United States Bureau of Mines and the Bureau of the Census of the United States Department of Commerce, through the active collection and publication of coal statistics by the Illinois State Department of Mines and Minerals, and through the generous cooperation of the mineral producers of the State in responding to requests for information.

The quantity and value of mineral output in Illinois in 1934 and 1935 is shown in Table 1.

There was increased activity in all branches of the mineral industry during the year 1935. Severe winter weather not only increased coal shipments but resulted in an early depletion of coal stocks in the Upper Lake docks with a consequent increased demand upon Illinois and Indiana fields.

Revival of the steel industry increased operations in the fluorspar district of the State. Stocks on hand were substantially reduced and the statistical position of the industry is considerably improved.

The clay products industry is gradually bringing about a reduction of excessive stocks and with increasing building activity, production schedules can soon be increased.

Increased construction activity also improved the demand for sand, gravel, limestone, and cement.

TABLE 1.—PRELIMINARY SUMMARY OF PRODUCTION AND VALUE OF ILLINOIS MINERALS, 1934-1935

Product	1934		1935	
	Tons	Value	Tons	Value
Coal.....	41,272,384	\$64,238,000	43,845,000	\$70,152,000
Pig Iron.....	1,430,841	25,357,717	2,224,132	39,092,488
Clay products.....		5,945,199		6,820,145
Coke.....	1,649,907	9,071,800	1,668,523	9,628,162
Cement, Portland (barrels).....	3,908,107	5,498,568	3,276,970	4,500,897
Sand and gravel (total).....	6,174,202	3,373,690	8,354,473	4,276,342
Structural sand.....	606,354	302,558	1,158,015	454,427
Paving and roadmaking sand..	1,014,805	419,832	901,428	387,925
Glass sand.....	448,804	449,832	470,546	554,322
Moulding sand.....	347,078	320,242	465,871	439,194
Railroad ballast sand.....	161,348	65,774	411,333	118,811
Grinding, polishing and blast sand.....	107,366	334,953	115,293	367,302
Engine sand.....	39,000	21,546	45,809	25,820
Fire or furnace sand.....	(a)	(a)	(a)	(a)
Other sands.....	123,129	125,675	144,585	108,851
Structural gravel.....	602,212	315,864	1,376,076	613,573
Paving and roadmaking gravel.	2,265,690	872,444	2,312,064	908,718
Railroad ballast gravel.....	291,166	62,193	822,589	250,416
Other gravel.....	167,250	82,777	130,864	46,983
Petroleum (barrels).....	4,479,000		4,305,000	4,864,465
Limestone (total).....	3,901,560	2,881,651	4,027,838	2,927,381
Road metal and concrete.....	2,667,242	1,963,405	2,516,494	1,742,168
Flux.....	257,650	149,225	337,618	177,131
Railroad ballast.....	228,517	150,263	389,646	257,572
Rip-rap.....	192,360	207,751	213,498	213,882
Rubble.....	68,450	47,690	39,935	45,990
Agriculture.....	448,810	291,761	320,080	221,704
Other uses.....	38,531	71,556	210,567	268,934
Mineral paints, zinc and lead pigments.....				
Natural gasoline (gallons).....	3,733,307	182,771		
Natural gas (M. cu. ft.).....				
Lime (total).....	86,679	655,359	117,602	878,746
Building.....	14,113	120,079	17,078	146,201
Tanneries.....	(a)	(a)	(a)	(a)
Metallurgy.....	(a)	(a)	35,219	234,075
Paper mills.....	3,121	20,427	8,230	46,201
Other uses.....	69,445	514,853	57,077	452,069
Fluorspar.....	33,234	567,396	44,120	685,794
Quartz (silica).....	50,748	285,849	66,492	370,488
Clay (raw).....	69,921	160,537	98,743	278,658
Tripoli.....	7,417	119,418	10,001	113,484
Lead and silver.....		3,160		
Sandstone.....	3,900	5,761	18,400	12,869
Zinc.....			1,114	
Pyrites.....				
Total.....		\$97,479,159		\$105,509,437

^a Included in other uses.

COAL

Review of production.—Coal production rose from 11.5 per cent of the national total in 1934 to 11.9 per cent of the national total in 1935 (Table 2). The high point of Illinois percentage of the total was 16.7 per cent in 1921, while the low point occurred in 1927 when it was 9.0 per cent. This, however, was an abnormal year due to suspension of mining operations during part of the year. During the period 1919 to 1935 the average share by Illinois of the total coal demand was 12.7 per cent.

TABLE 2—SUMMARY OF COAL PRODUCTION, 1933–1935
(In thousands of net tons)

Year	United States	Illinois	Illinois per cent of total
1933.....	333,631	37,413	11.2
1934.....	359,368	41,272	11.5
1935 ^(a)	369,324	43,845	11.9

^a Preliminary figures.

The production of shipping mines in Illinois, by months, as shown by the Illinois Department of Mines and Minerals, is given in Table 3.

Distribution of coal in the Illinois coal market area.—Table 4 gives a summary of all-rail revenue coal (exclusive of railway fuel) shipped into the Illinois coal market area by market districts in 1934 and 1935.

Shipments of coal from central and southern Illinois to Chicago increased substantially over 1934 and show a continuous increase since 1932, while shipments from western Kentucky and Indiana have remained practically constant. Shipments from western Kentucky to Illinois outside of Chicago dropped off substantially although coal consumption increased. Most of the increase was supplied by Illinois mines.

The principal eastern competitors of Illinois coal in the Chicago market, the New River-Winding Gulf and the Pocahontas-Tug River fields in West Virginia, still show increased shipments each year. Harlan and Hazard fields in eastern Kentucky, while not as large shippers of coal as the West Virginia fields, have doubled their shipments to Chicago since 1932. Kanawha (West Virginia), Logan, and Kenova-Thacker fields show a small decline in 1935 shipments as compared to 1934.

Shipments of Illinois coal to Milwaukee, although small, trebled from 1934 to 1935, and increased substantially in other Wisconsin territory.

TABLE 3.—BITUMINOUS COAL PRODUCTION BY SHIPPING MINES IN

County	January	February	March	April	May
Christian.....	405,147	386,249	420,207	261,399	296,322
Clinton.....	42,795	28,319	28,584	4,572	5,124
Franklin.....	985,397	772,733	958,253	270,532	434,454
Fulton.....	207,230	186,248	203,354	90,748	114,744
Henry.....	45,289	42,339	50,113	39,775	33,841
Jackson.....	132,300	132,342	113,592	76,792	63,428
LaSalle.....	26,026	20,234	23,216	15,190	13,804
Macoupin.....	370,476	367,625	418,177	169,257	289,659
Madison.....	218,505	187,860	164,948	87,218	29,548
Marion.....	39,844	33,575	45,588	(^b)	(^b)
Montgomery.....	63,379	55,952	69,082	(^b)	34,351
Peoria.....	144,012	128,977	133,372	67,780	96,770
Perry.....	349,906	365,625	403,757	183,157	203,161
Randolph.....	47,624	44,933	81,198	12,354	40,690
Saline.....	401,751	373,173	350,309	100,308	134,201
Sangamon.....	293,218	286,577	321,029	67,865	128,448
St. Clair.....	274,422	226,826	221,436	72,560	75,439
Tazewell.....	25,353	20,179	18,163	11,199	(^b)
Vermilion.....	201,628	197,140	222,042	113,457	135,506
Washington.....	46,029	42,330	45,225	15,008	20,131
Williamson.....	276,190	251,601	333,519	114,596	154,599
Woodford.....	15,562	13,632	12,189	(^b)	(^b)
Other Counties.....	190,737	177,714	181,754	133,775	112,044
Total.....	4,802,820	4,342,183	4,819,107	1,908,115	2,416,264
Strip Mines.....	673,614	671,973	721,717	426,912	447,765
Shaft Mines.....	4,129,206	3,670,210	4,097,390	1,481,203	1,968,499

^a Compiled from Coal Report for 1935, Illinois State Department of Mines and Minerals.^b Tonnage included in other counties.

ILLINOIS, BY COUNTIES AND MONTHS, FOR 1935 ^a (IN NET TONS)

June	July	August	September	October	November	December	1935 Total
345,349	268,054	296,129	213,400	355,120	278,060	384,924	3,910,360
(b)	(b)	11,840	19,324	32,751	19,226	40,831	233,366
614,510	260,216	433,406	494,763	1,001,107	820,938	942,672	7,988,981
104,310	133,955	118,223	109,918	217,148	194,423	215,185	1,895,486
45,256	38,116	46,720	39,889	58,597	51,739	55,609	547,283
71,566	70,158	105,204	89,621	171,579	99,399	145,771	1,271,752
8,077	4,886	14,724	21,837	32,896	29,244	33,145	243,279
304,818	212,882	223,998	279,922	296,972	337,718	401,135	3,672,639
64,998	41,586	56,274	105,901	170,211	137,551	180,567	1,445,167
(b)	(b)	16,197	20,919	39,538	40,414	43,839	279,914
35,816	27,977	33,857	43,361	45,599	53,384	63,148	526,206
(b)	(b)	37,020	71,326	129,694	108,164	141,034	1,058,149
245,858	163,998	179,549	159,433	371,547	287,096	348,225	3,261,312
47,305	16,729	17,793	48,886	40,220	61,858	63,158	522,748
160,885	124,767	180,224	280,849	350,420	290,237	400,201	3,147,325
117,973	64,306	81,559	169,933	235,491	276,180	291,673	2,334,252
101,849	69,760	95,881	154,306	236,986	189,103	254,887	1,973,455
(b)	(b)	2,816	14,297	13,699	15,114	19,997	140,817
136,613	82,035	63,581	89,867	136,437	120,868	175,753	1,674,927
29,004	15,731	15,264	15,632	49,247	39,482	41,323	374,406
220,229	145,573	172,524	164,895	365,612	298,764	273,545	2,771,647
(b)	(b)	(b)	8,908	13,227	9,729	13,042	86,289
233,547	140,801	84,765	126,066	169,917	183,587	234,231	1,968,388
2,887,963	1,881,530	2,287,548	2,743,253	4,534,015	3,942,278	4,763,895	41,328,971
505,368	414,361	454,974	425,513	796,033	712,170	803,640	7,054,040
2,382,595	1,467,169	1,832,574	2,317,740	3,737,982	3,230,108	3,960,255	34,274,931

TABLE 4.—ORIGIN AND DESTINATION OF REVENUE RAILROAD SHIPMENTS FROM
(EXCLUSIVE OF NON-REVENUE

From	Chicago, Illinois	Illinois, other	Mil- waukee, Wis.	Wis- consin, other	Council Bluffs, Iowa
<i>1934</i>					
Western Pennsylvania.....	19,858	1,530	340	496	.....
Altoona, Somerset-Meyersdale and Cumberland-Piedmont..	31,455	4,674	413	2,586	772
Fairmont (W. Va.).....	10,864	7,555	92	1,323	.....
Northern and Eastern Ohio....	2,120	.....	.....	944	.....
Southern Ohio.....	3,201	280	.....	493	.....
Kanawha, (W. Va.) Logan, and Kenova-Thacker (W. Va.- E. Ky.).....	865,362	105,197	1,421	42,798	1,274
New River-Winding Gulf and Pocahontas-Tug River.....	5,987,987	417,313	122,516	534,235	77
Northeast Kentucky and Mc- Roberts.....	812,537	236,818	601	43,192	.....
Virginia.....	86,865	14,051	.....	25,941	.....
Harlan and Hazard (E. Ky.)...	1,136,387	279,383	1,513	46,481	618
Ex-River Coal.....	.....	248	.....	.....	.....
Northern Illinois.....	660,261	1,720,818	162	53,130	44
Central and Southern Illinois..	5,013,206	5,697,164	16,293	665,931	42,455
Indiana.....	2,778,257	1,005,808	46,403	471,015	1,466
Western Kentucky.....	560,775	334,767	1,442	301,323	7,707
Total.....	17,969,135	9,825,606	191,196	2,189,888	54,413
<i>1935</i>					
Western Pennsylvania.....	51,515	45	.....	647	.....
Altoona, Somerset-Meyersdale and Cumberland-Piedmont..	45,379	5,471	372	5,403	733
Fairmont (W. Va.).....	11,825	4,159	.....	940	.....
Northern and Eastern Ohio....	929	.....	.....	1,098	.....
Southern Ohio.....	1,762	87	.....	228	.....
Kanawha (W. Va.), Logan and Kenova-Thacker (W. Va.- E. Ky.).....	718,957	104,602	1,879	42,616	1,230
New River-Winding Gulf and Pocahontas-Tug River.....	6,379,274	378,286	122,155	534,217	98
Northeast Kentucky and Mc- Roberts.....	793,829	122,093	1,180	35,982	.....
Virginia.....	116,018	15,855	43	34,288	.....
Hazard, Harlan, and Southern Appalachians.....	1,950,545	342,080	2,130	46,306	834
Ex-River Coal.....	470	.....	.....	.....	.....
Northern Illinois.....	461,974	1,877,469	1,132	83,978	.....
Central and Southern Illinois..	5,659,803	6,440,315	47,765	1,043,677	46,533
Indiana.....	2,859,975	1,032,359	72,820	418,830	153
Western Kentucky.....	603,154	357,087	1,720	285,069	6,180
Total.....	19,655,409	10,679,908	251,196	2,533,279	55,761

* Data from U. S. Bureau of Mines, Monthly Coal Distribution Reports.

ILLINOIS, INDIANA, AND WESTERN KENTUCKY AND FROM THE APPALACHIANS RAILROAD FUEL)^a

Iowa, other	St. Louis, Missouri	Kan- sas City	St. Joseph	Mis- souri, other	Kan- sas, other	Ne- braska, other	Minne- sota	South Da- kota	North Da- kota
<i>1934</i>									
521	.....	17	.....	.....	.....	.....	172	38	.....
3,011	3,331	859	417	2,008	1,261	1,508	4,509	1,454	.....
2,313	.....	.....	.....	.....	.....	.....	475	167	.....
4,453	.....	.....	.....	.....	.....	.....	239	73	.....
487	.....	.....	.....	.....	.....	.....	100	.....	.....
179,372	42,399	.....	.....	2,819	.....	438	25,194	2,979	.....
86,465	59,558	.....	.....	681	218	393	139,063	17,995	.....
158,901	177,011	50	.....	1,737	.....	716	28,162	4,379	.....
4,142	183	.....	.....	.....	.....	.....	8,630	363	.....
375,048	6,258	.....	.....	1,820	.....	1,302	38,661	8,890	.....
311,550	96	.....	.....	.....	.....	.....	50,118	1,827	.....
1,350,047	2,939,703	3,813	21,193	790,262	13,833	114,712	374,372	100,772	1,234
361,770	44,528	97	.....	1,310	.....	4,906	149,836	24,064	491
268,983	96,051	189	.....	113,548	.....	15,138	72,039	26,947	3,524
3,107,063	3,369,118	5,025	21,610	914,185	15,312	139,113	891,570	189,948	5,249
<i>1935</i>									
271	.....	.....	.....	.....	.....	.....	296	.....	.....
5,261	3,412	1,050	339	2,362	1,662	1,393	4,750	1,313	.....
2,073	.....	.....	.....	.....	.....	.....	843	201	.....
5,907	.....	.....	.....	.....	.....	.....	75	40	.....
3,800	.....	.....	.....	.....	.....	.....	447	.....	.....
195,376	64,248	.....	.....	2,493	.....	442	20,919	2,089	.....
86,619	75,307	.....	.....	1,078	83	115	141,361	15,671	.....
172,292	138,189	.....	.....	1,130	.....	729	27,991	3,174	.....
4,340	.....	.....	.....	.....	.....	.....	8,786	952	.....
474,453	7,606	.....	.....	2,089	.....	1,695	47,237	7,531	.....
376,410	479	.....	.....	240	.....	235	64,658	625	.....
1,503,507	3,067,025	4,606	33,267	892,121	19,387	130,938	435,626	121,804	1,796
401,107	47,996	152	.....	2,804	.....	3,494	134,936	10,413	181
299,576	86,135	50	.....	66,584	.....	14,322	58,114	26,957	4,531
3,530,992	3,490,397	5,858	33,606	970,901	21,132	153,363	946,039	190,770	6,508

Table 5 shows the origin and destination of coal into the Illinois coal market area, by percentages of total shipments received, for the past six years. Only fields shipping more than one per cent of the total all-rail shipments are included. The table of shipments to Chicago, for example, shows a slow decline after 1932, the year of prolonged suspension of mining in Illinois, for all important fields except two. These two fields are Harlan and Hazard, and Northeast Kentucky and McRoberts. The Illinois fields have regained a portion of the Chicago market since the low period of 1932 but Indiana and Kentucky, the two competitors in the Eastern Interior field, have not. However, there was a substantial increase in shipments from these two fields between 1930 and 1932 and much of this gain is still being held.

A further study of these tables shows that the principal competition of the eastern coal fields is localized mainly in the Chicago market area, in Wisconsin, and in Minnesota. A considerable portion of this probably represents coal used for domestic heating. The consumption of fuels for domestic heating in this area, including fuel oil and natural gas, is approximately equivalent to 14 or 15 million tons of coal. Only a small part of this is shared by Illinois fields.

Illinois coal shipments to Wisconsin.—An interesting feature of coal distribution since 1930 is the increasing shipments of coal from Illinois to Wisconsin. The heaviest coal consumption in Wisconsin is in the lake shore counties and secondly, in the southern part of the state. The lake shore market has long been dominated by shipments from eastern fields over the lakes. Nevertheless, coal from southern Illinois is being marketed in small but increasing quantities in the Milwaukee market and has made substantial gains in other Wisconsin markets. The record of revenue rail shipments from Illinois into this territory is shown in Table 6.

TABLE 5.—ORIGIN AND DESTINATION OF COAL INTO THE ILLINOIS COAL MARKET AREA, BY PERCENTAGES OF TOTAL SHIPMENTS, 1930-1935

(Shipments less than 1 per cent not included)

From	1930	1931	1932	1933	1934	1935
Shipments to Chicago						
Kanawha, Logan, and Kenova-Thacker	5.51	5.06	4.99	4.85	4.81	3.66
New River-Winding Gulf and Pocahontas-Tug River.....	32.05	33.9	35.90	33.50	33.30	32.42
Northeast Kentucky and McRoberts..	5.85	4.17	2.97	3.94	4.52	4.04
Hazard, Harlan, and Southern Appalachians.....	11.20	9.45	6.30	7.32	6.32	9.96
Northern Illinois.....	2.30	2.87	3.64	3.52	3.68	2.59
Central and Southern Illinois.....	29.80	30.2	23.3	27.80	27.90	28.82
Indiana.....	5.81	10.1	16.41	15.30	15.46	14.51
Western Kentucky.....	2.64	2.98	6.05	3.15	3.12	3.06
Other Fields.....	4.84	1.27	.44	.62	.89	.94
Total.....	100.00	100.00	100.00	100.00	100.00	100.00

Shipments to Other Illinois Points

Kanawha, Logan, and Kenova-Thacker	1.47	2.72	1.76	1.42	1.07	.98
New River-Winding Gulf and Pocahontas-Tug River		3.95	3.69	4.35	4.25	3.54
Northeast Kentucky and McRoberts..		1.12	2.16	2.50	2.40	1.14
Hazard, Harlan, and Southern Appalachians.....	4.08	5.51	5.06	4.27	2.84	3.20
Northern Illinois.....	11.48	10.52	12.26	13.49	17.50	17.60
Central and Southern Illinois.....	65.5	61.4	53.70	57.90	57.90	60.40
Indiana.....	9.36	9.8	11.28	11.09	10.20	9.70
Western Kentucky.....	6.36	4.8	9.89	4.77	3.40	3.35
Other Fields.....	1.75	.18	.20	.21	.44	.09
Total.....	100.00	100.00	100.00	100.00	100.00	100.00

Shipments to Milwaukee

Kanawha, Logan, and Kenova-Thacker	4.21	2.86	1.98	.....	.....	.....
New River-Winding Gulf and Pocahontas-Tug River.....	71.0	74.3	76.5	77.7	64.10	48.60
Northeast Kentucky and McRoberts ..	2.65	1.51	.....	.....	.....	.....
Virginia.....	1.02	.....	1.17	.....	.....	.....
Hazard, Harlan, and Southern Appalachians.....	1.57	2.0	2.16	1.32	.....	.....
Central and Southern Illinois.....	10.35	9.58	5.44	4.35	8.52	19.50
Indiana.....	7.12	7.12	9.00	11.50	24.30	29.00
Western Kentucky.....	1.07	1.58	2.30	3.14	.....	.....
Other Fields.....	1.01	1.05	1.45	1.99	3.08	2.90
Total.....	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 5.—ORIGIN AND DESTINATION OF COAL (*Continued*)

From	1930	1931	1932	1933	1934	1935
Shipments to Other Wisconsin Points						
Kanawha, Logan, and Kenova-Thacker	10.50	4.48	4.26	3.32	1.95	1.68
New River-Winding Gulf and Pocahontas—Tug River.....	32.10	29.3	32.39	30.80	24.4	21.20
Northeast Kentucky and McRoberts..	8.6	5.5	4.24	3.62	1.97	1.42
Virginia.....		1.21	1.75	1.37	1.18	1.35
Hazard, Harlan and Southern Appalachians.....	9.47	3.24	3.64	3.70	2.12	1.83
Northern Illinois.....					2.42	3.31
Central and Southern Illinois.....	19.6	24.8	19.4	23.61	30.40	41.10
Indiana.....	7.46	14.06	17.38	19.41	21.52	16.51
Western Kentucky.....	10.1	16.41	15.71	13.40	13.71	11.30
Other Fields.....	2.17	.10	1.23	.77	.33	.33
Total.....	100.00	100.00	100.00	100.00	100.00	100.00
Shipments to Council Bluffs, Iowa						
Kanawha, Logan, and Kenova-Thacker	1.58	2.92	2.96	3.28	2.34	2.20
Hazard, Harlan, and Southern Appalachians.....		1.34	1.50	2.1	1.13	1.50
Central and Southern Illinois.....	65.9	70.5	77.0	75.20	78.00	83.40
Indiana.....	2.17	3.99	1.91	1.11	2.70	.....
Western Kentucky.....	28.8	20.2	15.4	16.10	14.15	11.1
Other Fields.....	1.55	1.05	1.23	2.56	1.68	1.80
Total.....	100.00	100.00	100.00	100.00	100.00	100.00
Shipments to Other Iowa Points						
Southern Ohio.....						1.00
Kanawha, Logan, and Kenova-Thacker	7.75	6.78	7.37	6.62	5.77	5.40
New River-Winding Gulf and Pocahontas—Tug River.....	2.60	2.54	2.54	2.76	2.78	2.46
Northeast Kentucky and McRoberts..	6.11	6.3	6.00	5.41	5.10	4.88
Hazard, Harlan, and Southern Appalachians.....	13.0	12.51	13.8	13.50	12.09	13.40
Northern Illinois.....	3.76	5.48	5.2	8.50	10.01	10.68
Central and Southern Illinois.....	45.95	45.1	37.8	40.90	43.49	42.50
Indiana.....	8.2	9.45	8.86	9.00	11.62	11.30
Western Kentucky.....	11.98	11.2	18.11	12.70	8.65	8.30
Other Fields.....	.65	.64	.32	.61	.49	.08
Total.....	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 5.—ORIGIN AND DESTINATION OF COAL (Continued)

From	1930	1931	1932	1933	1934	1935
Shipments to St. Louis, Missouri						
Kanawha, Logan, and Kenova-Thacker	1.34	.....	1.11	1.37	1.26	1.84
New River-Winding Gulf and Pocahontas-Tug River.....	2.39	2.6	1.98	2.10	1.77	2.16
Northeast Kentucky and McRoberts..	4.45	5.7	5.58	5.76	5.25	3.96
Central and Southern Illinois.....	87.3	86.75	77.8	84.50	87.20	87.90
Indiana.....	.....	.....	1.90	1.94	1.32	1.37
Western Kentucky.....	3.5	2.92	11.50	3.97	2.85	2.46
Other Fields.....	1.02	2.03	.13	.36	.35	.31
Total.....	100.00	100.00	100.00	100.00	100.00	100.00
Shipments to Kansas City, Missouri						
Central Pennsylvania, Somerset-Meyersdale and Cumberland-Piedmont.....	1.36	2.05	9.24	12.45	17.10	17.91
Central and Southern Illinois.....	98.	97.5	89.4	84.65	76.00	78.50
Indiana.....	.....	.....	.....	2.05	1.93	2.6
Western Kentucky.....	.....	.....	.....	.....	3.76	.99
Other Fields.....	.64	.45	1.36	.85	1.30	.....
Total.....	100.00	100.00	100.00	100.00	100.00	100.00
Shipments to St. Joseph, Missouri						
Central Pennsylvania, Somerset-Meyersdale and Cumberland-Piedmont.....	1.18	1.84	1.85	1.65	1.00	1.00
Kanawha, Logan, and Kenova-Thacker	1.94	.....	.....	.....	.....	.....
Central and Southern Illinois.....	96.2	95.2	98.00	97.90	99.00	99.00
Other Fields.....	.68	2.96	.15	.45	.....	.....
Total.....	100.00	100.00	100.00	100.00	100.00	100.00
Shipments to Other Missouri Points						
Central and Southern Illinois.....	82.8	84.5	75.0	83.20	86.50	91.90
Indiana.....	1.12	.....	.....	.....	.....	.....
Western Kentucky.....	14.55	13.5	23.2	15.33	12.52	6.85
Other Fields.....	1.53	2.0	1.8	1.47	.98	1.25
Total.....	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 5.—ORIGIN AND DESTINATION OF COAL (*Continued*)

From	1930	1931	1932	1933	1934	1935
Shipments to Other Kansas Points						
Central Pennsylvania, Somerset-Meyersdale and Cumberland-Piedmont.....	2.86	3.29	7.34	7.25	8.25	7.87
New River-Winding Gulf and Pocahontas-Tug River.....					1.25	
Hazard, Harlan, and Southern Appalachians.....	5.21					
Central and Southern Illinois.....	89.4	95.2	90.0	92.00	90.50	91.70
Indiana.....	1.73					
Western Kentucky.....			1.00			
Other Fields.....	.80	1.51	1.66	.75		.43
Total.....	100.00	100.00	100.00	100.00	100.00	100.00

Shipments to Other Nebraska Points

Central Pennsylvania, Somerset-Meyersdale and Cumberland-Piedmont.....				1.00	1.08	
Kanawha, Logan, and Kenova-Thacker Hazard, Harlan, and Southern Appalachians.....	2.0	1.31				
Central and Southern Illinois.....	2.52	2.41	1.53			1.12
Indiana.....	82.4	82.5	80.9	81.30	82.50	85.30
Western Kentucky.....	4.16	3.91	4.21	3.94	3.52	2.27
Other Fields.....	7.64	8.11	11.61	12.19	10.89	9.34
	1.28	1.76	1.75	1.57	2.01	1.97
Total.....	100.00	100.00	100.00	100.00	100.00	100.00

Shipments to Minnesota

Kanawha, Logan, and Kenova-Thacker New River-Winding Gulf and Pocahontas-Tug River.....	3.04	2.34	2.58	3.42	2.82	2.21
Northeast Kentucky and McRoberts..	14.1	16.45	20.59	21.61	15.60	14.95
Hazard, Harlan, and Southern Appalachians.....	5.55	5.06	4.28	4.40	3.16	2.96
Northern Illinois.....	5.10	4.65	5.14	4.95	4.34	5.00
Central and Southern Illinois.....	13.31	15.28	11.00	6.78	5.61	6.82
Indiana.....	42.9	37.67	30.19	32.62	42.00	46.00
Western Kentucky.....	4.93	8.80	11.49	15.12	16.80	14.20
Other Fields.....	9.35	8.65	13.50	9.49	8.08	6.14
	1.72	1.10	1.23	1.61	1.59	1.72
Total.....	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 5—ORIGIN AND DESTINATION OF COAL (*Concluded*)

From	1930	1931	1932	1933	1934	1935
Shipments to South Dakota						
Kanawha, Logan, and Kenova-Thacker	5.17	3.20	2.13	2.26	1.57	1.10
New River-Winding Gulf and Pocahontas-Tug River.....	12.10	10.51	14.5	14.64	9.47	8.20
Northeast Kentucky and McRoberts..	5.19	6.93	2.7	4.10	2.31	1.66
Hazard, Harlan, and Southern Appalachians.....	8.86	7.4	5.74	6.54	4.69	3.95
Central and Southern Illinois.....	54.8	54.25	45.8	43.00	52.60	63.85
Indiana.....	.....	.....	1.22	9.84	12.68	5.46
Western Kentucky.....	12.0	16.11	25.91	17.75	14.20	14.11
Other Fields.....	1.88	1.60	2.00	1.87	2.48	1.67
Total.....	100.00	100.00	100.00	100.00	100.00	100.00

Shipments to North Dakota						
Northern Illinois.....	.....	.....	2.2	.....	.....	.....
Central and Southern Illinois.....	28.09	40.5	11.50	16.73	24.07	27.60
Indiana.....	18.05	4.05	3.60	14.6	9.39	2.80
Western Kentucky.....	53.35	55.5	82.7	68.67	66.54	69.60
Other Fields.....	.51	.40	.....	.....	.....	.....
Total.....	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 6.—SHIPMENTS OF COAL FROM CENTRAL AND SOUTHERN ILLINOIS AND FROM NORTHERN ILLINOIS TO WISCONSIN

	To Milwaukee (Tons)	To Other Wisconsin Points (Tons)
From Central and Southern Illinois		
1930.....	33,999	612,478
1931.....	23,875	443,930
1932.....	11,297	321,495
1933.....	10,872	409,127
1934.....	16,293	665,931
1935.....	47,765	1,043,677
From Northern Illinois		
1930.....	0	20,268
1931.....	0	9,759
1932.....	0	14,632
1933.....	154	16,812
1934.....	162	53,130
1935.....	1,132	83,978

The rapid gain in shipments from 1932, the low year, to 1935 cannot be accounted for solely by reviving industrial activity. Nor are the large shipments in 1935 explained by severe weather conditions since the cold winter weather of 1935-1936 had not yet affected coal shipments in December of 1935. A probable explanation is the changing trend in consumer habits. It must be borne in mind that Wisconsin is located in a high-cost fuel area. For many years anthracite dominated the domestic fuel market until rising prices brought about the introduction of substitutes such as the smokeless coals of West Virginia, coke, briquets, and fuel oil. Although these fuels are somewhat lower in price than anthracite, transportation and preparation costs tended to keep these fuels at a fairly high price level. This is bringing about the introduction of stokers designed to burn lower priced fuels, some of which are available from Illinois fields.

Wisconsin consumes annually an equivalent of about four or five million tons of coal for domestic and commercial heating. The competitive nature of the market is shown by the kinds of fuel used and the variety of sources from which it is obtained. The quantities of fuel used in the state can be partly estimated from isolated data available, as follows:

	TONS
Anthracite—1933.....	161,000
Briquets —1935.....	155,000
Coke —1929.....	408,000
Fuel oil—1934 (equivalent tons).....	444,000
Bituminous coal—1934 (approximately).....	3,000,000

Bituminous coal was obtained mainly from West Virginia, eastern Kentucky, Virginia, Illinois, Indiana, and western Kentucky fields. A consumption in excess of 1,000,000 tons of prepared fuels, approximately 25 per cent of the total required for heating purposes, and the importation over high freight rates of large quantities of eastern coals indicates an opportunity for a capture of a larger portion of this market by the lower priced Illinois coals if conditions of market demand are properly met. The introduction of stokers designed to handle Illinois coals appears to be one of the promising methods that can be employed in entering further into this market.

Coal production in other states within the Illinois coal market area.

In addition to shipments of coal from Appalachian, Indiana, and western Kentucky fields by all-rail and rail-lake hauls, the Illinois coal industry shares the market with local production in states west of the Mississippi River. Production in these states, 1930-1935, is as follows:

TABLE 7.—COAL PRODUCTION IN IOWA, KANSAS, MISSOURI, AND THE DAKOTAS
(In thousands of tons)

Producing State	1930	1931	1932	1933	1934	1935
Iowa.....	3,893	3,388	3,862	3,195	3,367	3,468
Kansas.....	2,430	1,987	1,953	2,218	2,508	6,104
Missouri.....	3,853	3,621	4,070	3,432	3,352	
North Dakota.....	1,700	1,519	1,740	1,782	1,754	1,872
South Dakota.....	13	27	49	59	60	.....
Total.....	11,889	10,532	11,674	10,686	10,975	11,444

Strip-mined coal in Illinois.—Coal mined by stripping methods showed a substantial increase in 1935 over 1934. With the exception of 1932, when operations in shaft mines were suspended for several months, the percentage of total production reached the highest peak in 1935 (Table 8).

TABLE 8.—STRIP-MINED COAL IN ILLINOIS, 1929-1935

Year	Output, tons	Percent of total output
1929.....	5,374,813	8.8
1930.....	6,116,415	11.3
1931.....	6,262,501	14.6
1932.....	6,423,935	20.4
1933.....	5,423,796	15.4
1934.....	5,777,202	14.1
1935.....	7,054,040	16.1

Fuel briquets.—Distribution of fuel briquets in 1935 increased over the previous year in the Illinois coal market area. (Table 9). Particularly significant gains occurred in Wisconsin and Minnesota.

TABLE 9.—BRIQUETS CONSUMED FOR DOMESTIC FUEL IN THE ILLINOIS COAL MARKET AREA, 1931-1935^a
(In net tons)

State	1931	1932	1933	1934	1935
Illinois.....	7,918	5,474	6,218	12,606	18,831
Wisconsin.....	77,907	65,872	89,131	104,885	154,857
Minnesota.....	200,583	137,292	133,102	168,067	195,384
Iowa.....	23,843	18,310	19,269	22,713	23,068
Missouri.....	4,271	3,005	4,360	5,904	7,564
North Dakota.....	52,288	43,915	46,746	50,525	60,419
South Dakota.....	39,490	29,999	28,704	34,401	43,596
Nebraska.....	16,975	8,245	8,992	16,171	15,214
Kansas.....	10,033	6,262	4,243	5,278	4,841
Total.....	433,308	318,374	340,765	420,550	523,774
Total for the United States....	688,258	485,288	529,162	704,856	858,646

^a U. S. Bureau of Mines, Weekly Coal Report 988—June 20, 1936.

Trend in natural gas consumption.—Importation of natural gas into the Illinois coal market area continued its upward trend in 1935 over previous years, although the rate of increase is declining. Detailed data of distribution are not yet available for 1935, but a total figure for the United States shows an increase of natural gas output.

Fuel oil.—Consumption of fuel oil and gas oil in the Illinois coal market area in 1935, the latest detailed data available, amounted to 38,024,000 barrels (Table 10). This is roughly equivalent to 9,500,000 tons of coal. In addition, 1,423,000 barrels of range oil, which is usually a partly refined kerosene, was used in cooking, space heating, and hot water heating. The largest single item of consumption is accounted for by domestic and commercial heating. A comparison with consumption of fuel oil in 1930 shows a decided increase in the use of oils for heating and a moderate increase in commercial and industrial uses. (Table 11).

A recent survey of fuel oil issued by the Oil Burner Institute shows that the wholesale fuel oil price per barrel of 42 gallons has been going up gradually during the past several years and that the 1935 price was on the same level as 1929. The wholesale price per barrel in both years was 89 cents. The price fell to 78 cents in 1930, 57 cents in 1931, 62 cents in 1933, and 83 cents in 1934. The prices are

predicated on a weighted average of five refineries. The increasing use of diesel engine power is creating a demand which is competing with heating fuel oil and will tend to raise prices. The survey indicates that purchasers of fuel oil can anticipate a six to nine per cent increase in price yearly.

TABLE 10.—CONSUMPTION OF GAS OIL AND FUEL OIL IN THE
ILLINOIS COAL MARKET AREA IN 1935
(Thousands of barrels of 42 gallons each)

	Commercial and Domestic heating	Industrial Uses	Total	Range Oil
Illinois.....	8,324	6,713	15,037	305
Wisconsin.....	2,227	765	2,992	153
Minnesota.....	2,497	489	2,986	209
Iowa.....	856	522	1,378	152
Missouri.....	3,509	3,074	6,583	232
North Dakota.....	227	42	269	44
South Dakota.....	283	191	474	61
Nebraska.....	789	526	1,315	81
Kansas.....	294	7,100	7,394	186
Total.....	19,006	19,422	38,428	1,423

TABLE 11.—CONSUMPTION OF GAS OIL AND FUEL OIL IN
THE ILLINOIS COAL MARKET AREA 1930
(Thousands of barrels of 42 gallons each)

	Commercial and Domestic heating	Industrial Uses	Total
Illinois.....	3,101	9,526	12,627
Wisconsin.....	801	766	1,567
Minnesota.....	771	803	1,575
Iowa.....	321	785	1,106
Missouri.....	1,415	3,053	4,468
North Dakota.....	84	44	128
South Dakota.....	43	112	155
Nebraska.....	332	517	849
Kansas.....	110	4,551	4,661
Total.....	6,978	20,157	27,135

PETROLEUM

Production and price.—The production of petroleum in Illinois in 1934 and 1935 is given in Table 12.

TABLE 12.—PETROLEUM PRODUCED IN ILLINOIS IN 1934-1935
(In barrels of 42 gallons each)

Month	1934	1935	Month	1934	1935
January.....	393,000	332,000	July.....	394,000	377,000
February.....	337,000	295,000	August.....	402,000	379,000
March.....	394,000	370,000	September.....	378,000	370,000
April.....	373,000	338,000	October.....	352,000	391,000
May.....	411,000	382,000	November.....	305,000	369,000
June.....	392,000	358,000	December.....	321,000	344,000
First 6 months....	2,300,000	2,075,000	Year.....	4,452,000	4,305,000

The average price for petroleum in 1935 was \$1.23 compared with \$1.13 in 1934 and \$0.87 in 1933.

The consumption of major petroleum products.—The growing importance of petroleum products as a fuel for commercial and domestic heating is bringing to the foreground certain problems in the marketing of these products. Until recently, the principal cash crop of the petroleum industry was gasoline and lubricating oils, while fuel oil, the other principal commodity besides gasoline, was

TABLE 13.—CONSUMPTION OF MAJOR PETROLEUM
PRODUCTS, 1926-1935
(In thousands of barrels of 42 gallons each)

Year	Gasoline ^a	Total Fuel Oil ^b	Oil Used for Heating ^b	Per cent Heating Oil of Total Fuel Oil
1926.....	195,322	334,030	22,780	6.8
1927.....	219,834	334,272	27,459	8.2
1928.....	255,705	353,232	30,699	8.7
1929.....	322,619	371,999	37,400	10.0
1930.....	375,287	267,361	43,279	11.8
1931.....	398,077	329,137	40,578	12.4
1932.....	368,938	301,570	44,264	14.7
1933.....	367,532	308,347	50,140	16.3
1934.....	395,123	330,321	60,822	18.4
1935.....	427,120	365,958	76,853	21.0

^a American Petroleum Institute.

^b U. S. Bureau of Mines, National Survey of Fuel Oil Distribution, 1930, and Mineral Market Reports No. M. M. S. 415, November 19, 1935.

sold as a by-product in the competitive fuel market. Since 1926, the use of fuel and furnace oil for domestic and commercial heating has gained rapidly. The distribution of gasoline, total fuel, and fuel oil heating purposes is shown in Table 13.

An analysis of the above table shows a doubling of gasoline consumption since 1926 and a trebling of oil used for heating, while the distribution of total fuel oil showed no net gain. Gasoline consumption, however, reached a peak of 398,000,000 barrels in 1931 and did not exceed this record of consumption again until 1935. In spite of increasing automobile traffic, it is not likely that gasoline consumption will show the same rate of growth in the coming year as was shown up to 1931. The petroleum industry is, therefore, giving increasing attention to heating oils as an additional source of income.

This program is not without its market difficulties. Since not all fuel oil can be converted into a product suitable for heating oils, an increasing supply of the latter can be obtained only by increasing runs of crude oil to stills. During a severe winter such as was experienced in 1935-1936, there was a heavy drain on furnace oil stocks to the extent that not only were these supplies depleted but some refineries increased runs to stills in order to meet demands for heating oils, with a concurrent increase in gasoline stocks. At the same time automobile transportation was curtailed during the cold season so that gasoline stocks early in 1936 rose considerably above a normal supply. In view of the low stocks of furnace oil at the end of the heating season of 1935-1936, there has been a tendency to increase runs to stills in order to build up a supply of furnace oil for the coming heating season in 1936-1937. If this is done, there is a possibility of increasing gasoline stocks to a point where the price structure of both gasoline and crude oil may be endangered. The increasing importance of furnace oil as a supplemental cash crop to the oil industry therefore presents a dilemma to the refining industry. If gasoline stocks are kept down to a normal level, the supply of furnace oil may be inadequate and rising prices of the latter will bring about a return to coal as a source of domestic fuel. An attempt to maintain adequate supplies of heating oil may weaken the price of gasoline. It has been suggested that an economic balance between these two products can be maintained by cracking less gas oil for gasoline than has been customary in the past, diverting it instead to heating oil use.¹

¹ Lamp, October 1936, p. 4.

BUILDING INDUSTRY

Illinois produces a wide variety of mineral products, including sand and gravel, cement, clay products, lime, glass sand, crushed stone, rubble and rip-rap, all of which share in construction and building activities. Although these materials do find their way into markets other than construction, the large proportion of them directly or indirectly enter into the erection of homes, offices, public buildings, and industrial structures, making these materials more or less dependent upon the extent of building activity.

TABLE 14.—VALUE OF BUILDING PERMITS IN 16 ILLINOIS CITIES AND ST. LOUIS, MISSOURI (a)

City	1933	1934	1935 (Preliminary)
Aurora.....	\$ 104,966	\$ 282,282	\$ 250,270
Bloomington.....	192,570	238,046	579,022
Chicago.....	3,683,960	7,727,351	12,936,409
Cicero.....	56,165	162,885	198,240
Decatur.....	157,605	577,640	588,102
E. St. Louis.....	212,742	265,498	869,123
Elgin.....	105,953	169,946	217,945
Evanston.....	402,600	741,700	947,750
Freeport.....	102,782	99,887	230,135
Moline.....	102,685	170,653	335,893
Oak Park.....	122,940	181,850	626,200
Peoria.....	1,891,320	910,987	1,791,342
Quincy.....	73,954	58,314	81,716
Rockford.....	117,720	227,300	347,065
Rock Island.....	186,426	322,892	332,906
Springfield.....	535,929	326,184	456,453
St. Louis, Missouri.....	10,106,632	4,998,453	11,355,867
Total.....	\$18,156,949	\$17,461,868	\$32,144,438

^a Data from Commercial and Financial Chronicle.

TABLE 15.—COMPARISON OF BUILDING ACTIVITY IN 811 U. S. CITIES, 1934-1935^a

Class of Construction	Number of buildings			Estimated Cost		
	1935	1934	P. C. change	1935	1934	P. C. change
New residential.....	53,058	21,773	+143.7	\$291,227,231	\$107,146,264	+171.8
New Non-residential...	79,439	64,546	+ 23.1	316,730,227	215,402,856	+ 47.0
Additions, alterations, repairs.....	317,626	264,241	+ 20.2	228,546,659	168,505,689	+ 35.6
All construction.....	450,123	350,560	+ 28.4	836,504,117	491,054,809	+ 70.3

^a Data from U. S. Department of Labor.

The first pronounced measure of building recovery was in 1935, as shown in Table 14. An 84 per cent increase in building permits issued in the 16 Illinois cities and St. Louis, Missouri, over the 1934 total is gratifying not only in that it marks a definite upturn for the severely deflated construction industries but in that the value of building permits of this group of cities is 14.3 per cent above the average for 811 cities throughout the United States, as compiled by the U. S. Department of Labor, shown in Table 15.

Most important in Table 15 is the significant increase in new residential construction. This class of construction acts as a business barometer and is important because of its greater relative volume in normal times, and in that it is a measure of public purchasing power and a reflection of the confidence of private capital.

It must be remembered, however, that although building activity in 1935 was substantially greater than in the previous year, the total value for 1934 as given in Table 15 was actually less than in 1933. This was particularly due to the decline of almost 50 per cent in value of permits issued in St. Louis, most of the cities showing somewhat of an increase.

The building industry usually contracts more of the durable or capital goods classification than do other industries and its advance after the worst effects of a depression is usually tardy. The striking improvement now recorded is highly important for this reason. The building industry in Illinois began its decline in 1926 and reached the lowest level of activity in 1932. In 1934 many cities showed an increase and in 1935 all cities recorded in Table 14, with two exceptions, evidenced improvement.

TABLE 16.—VALUE OF BUILDING PERMITS OF SIX GROUPS
OF ILLINOIS CITIES FROM 1920 TO 1935
(In millions of dollars)

Year	Chicago, Oak Park, Evanston, Cicero	St. Louis and East St. Louis	Rock Island and Moline	Rockford and Freeport	Elgin and Aurora	Springfield Decatur, Bloomington, Peoria
1920.....	79.5	19.6	...	...	...	9.3
1921.....	135.6	18.0	...	...	...	8.1
1922.....	243.7	27.9	...	...	...	11.2
1923.....	351.3	44.3	2.1	4.8	4.7	10.1
1924.....	316.9	43.1	2.2	4.9	4.4	15.3
1925.....	382.9	60.1	2.3	7.4	7.2	17.9
1926.....	386.9	44.3	2.6	6.5	7.7	16.4
1927.....	378.0	47.7	3.4	8.2	4.7	14.0
1928.....	338.3	45.5	2.8	7.7	5.7	13.2
1929.....	216.2	29.8	4.4	6.2	3.7	11.9
1930.....	84.6	18.8	2.1	3.5	2.2	9.3
1931.....	48.5	17.7	1.2	.9	1.8	5.4
1932.....	4.8	4.6	.3	.9	.3	1.5
1933.....	4.3	10.3	.3	.2	.2	2.8
1934.....	8.8	5.3	.5	.3	.5	2.1
1935.....	14.7	12.2	.7	.6	.5	3.4

Table 16 presents building permit data for six groups of Illinois cities, in millions of dollars, for the years 1920 to 1935. These figures suggest that the building industry in this State is definitely on the up-turn after having experienced its lowest level in the year 1932 of the industrial depression. Also pictured by this table are the great strides construction must take before it can be said that normal building and industrial conditions are restored. This fact is further substantiated when the 1935 total value of permits issued in these cities, \$32,144,438, is compared to the total of \$415,526,483 in 1928. While it is improbable that the activity of building in the period 1926-1928 will recur in the future, the level of building activity in 1935 is probably much below normal requirements.

F. W. Dodge figures¹ show that in 1935 industrial building increased slightly over that of 1934 for 37 states east of the Rocky Mountains, although it lagged as compared to an almost double outlay for residential construction in 1935. Public works and utility project contracts declined somewhat from 1934. A few building permits statistics compiled by the F. W. Dodge Corporation illustrate the importance of residential building for the improvement last year (Table 17).

TABLE 17.—VALUE OF BUILDING PERMITS FOR 37 STATES EAST OF ROCKY MOUNTAINS^a

Class	1935	1934	1933	1931 and 1929
Residential.....	\$478,843,100	\$248,840,100	\$249,262,100	\$811,338,700 (1931)
Non-residential.....	675,488,600	543,031,800	403,723,700	2,590,221,000 (1929)
Public works.....	578,541,800	625,044,500	.....	.....
Utility.....	111,671,400	126,192,000	.....	.....

^a Data compiled by F. W. Dodge Corporation.

A further refinement of residential construction data for 811 identical cities has been compiled by the U. S. Department of Labor and is shown in Table 18. In 1935 there was a greater number of dwellings and more money outlaid for the one-family dwelling than for any other kind. However, the greatest increase over the 1934 dwelling construction total took place in the multi-family class, showing that business conditions are returning to the point where it is profitable to relieve the shortage in apartments.

¹ Commercial and Financial Chronicle, Jan. 27, 1936.

TABLE 18.—NUMBER OF FAMILY-DWELLING UNITS PROVIDED IN 811 CITIES^a

Unit	No. of new buildings for which permits issued			Families provided for		
	1935	1934	P. C. Change	1935	1934	P. C. Change
One-family.....	49,001	20,198	+142.6	49,001	20,198	+142.6
Two-family.....	2,428	1,176	+106.5	4,544	2,180	+108.4
Multi-family.....	1,523	341	+346.6	22,970	7,290	+215.1
All kinds.....	52,952	21,715	+143.8	76,515	29,668	+157.9

^a Data from U. S. Department of Labor.

Total construction awards during the first two months of 1936 were 98.5 per cent higher than for the same two months of 1935 in 37 states east of the Rocky Mountains, according to F. W. Dodge figures. Table 19 gives comparative figures for the different classes of construction for this period.

TABLE 19.—CONSTRUCTION CONTRACTS AWARDED IN 37 STATES EAST OF THE ROCKY MOUNTAINS, COMPARING THE FIRST TWO MONTHS OF THE YEARS 1936 AND 1935^a

January and February	No. of Projects	New floor space (Sq. ft.)	Valuation (Dollars)	P. C. ^b increase over 1935
1936				
Residential building.....	6,943	19,420,000	68,615,000	75.7
Non-residential.....	5,116	27,431,400	153,090,700	114.1
Public works and utilities.....	2,107	1,057,700	125,137,300	73.2
Total construction.....	14,116	47,910,000	346,843,000	98.5
1935				
Residential building.....	5,864	10,096,900	39,027,000	....
Non-residential.....	4,875	10,607,300	63,571,200	....
Public works and utilities.....	1,854	211,200	72,222,800	....
Total construction.....	12,593	20,915,400	174,821,000	....

^a Figures from the F. W. Dodge Corporation.^b Calculated.

The value of building permits for 16 Illinois cities for the first seven months in 1935 and 1936 has been compiled from monthly issues of the Illinois Journal of Commerce. The results are given in Table 20 which affords a basis of comparison for construction in Illinois in the year 1935 and the possible trend building may take during the remainder of the current year.

TABLE 20.—VALUE OF BUILDING PERMITS IN 16
ILLINOIS CITIES^a, BY MONTHS, 1935-1936

Month	1935			1936		
	Value of Building Permits	Number of Permits	Average Value of Permit	Value of Building Permits	Number of Permits	Average Value of Permit
January.....	\$ 94,963	151	\$ 628.80	\$ 809,143	203	\$3,985.90
February....	165,307	222	744.60	214,525	141	1,230.60
March.....	704,078	379	1,857.70	974,588	632	1,542.00
April.....	790,493	601	1,315.20	3,510,586	752	4,668.00
May.....	362,406	610	594.10	1,516,786	982	1,545.10
June.....	686,543	629	1,091.50	1,027,920	1,077	954.40
July.....	526,791	646	815.50	1,058,057	828	1,277.50

^a The 16 cities: Aurora, Bloomington, Champaign, Danville, Decatur, East St. Louis, Elgin, Freeport, Joliet, Moline, Peoria, Quincy, Rockford, Rock Island, Springfield, and Waukegan.

CLAY PRODUCTS INDUSTRY

The clay products industry is one of the largest non-fuels mineral industries in Illinois, in terms of value of production. The total value of clay products in Illinois continued to increase in 1935, the preliminary total being \$6,820,145 for this year, in comparison with \$5,945,199 for the year 1934. However, the following table shows that this increase was principally in the pottery division of the industry and that there was but a slight increase in the structural and refractory clay products division.

TABLE 21.—VALUE OF CLAY PRODUCTS, 1932 TO 1935

	1932	1933	1934	1935
Structural and refractory clay products.....	\$2,504,610	\$2,328,556	\$4,498,960	4,555,624
Pottery.....	1,837,033	1,816,467	1,446,239	2,264,521
Total.....	\$4,341,643	\$4,145,033	\$5,945,199	\$6,820,145

The index values of structural and refractory clay products, pottery, and building permits in Illinois are compared in figure 1 for the period 1920 to 1935. The index numbers are based on the 1923-1925 average for each unit. The close relationship between the value of clay products and the trend of building permits is clearly shown. Building permit data for the years 1920-1922 are not available.

The merely slight increase in the structural and refractory clay products division was largely the result of almost a 50 per cent reduction in production value of paving blocks in 1935. There was also a slight decrease in value of refractory cement and in non-clay refractories. The figures given in Table 22 show an increase over the 1934 totals in the following classes: common brick, face brick, hollow brick, hollow building tile, drain tile, fireclay products, and clay sold (raw or prepared). The value of those classes included under other clay products (except pottery) which decreased in 1935 includes terra cotta, sewer pipe, flue lining and non-clay refractories. Wall coping was the only product included in this category which showed an increase in 1935 over 1934.

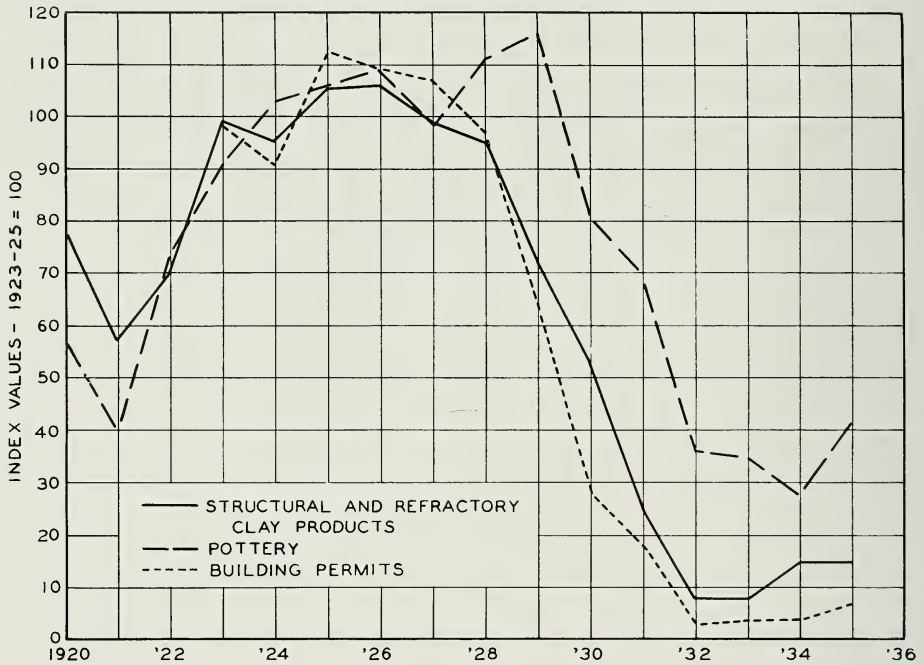


Fig. 1.—COMPARATIVE VALUES OF STRUCTURAL CLAY PRODUCTS, POTTERY, AND BUILDING PERMITS. INDEX NUMBERS BASED ON 1923-1925 AVERAGE.

TABLE 22.—PRODUCTION OF CLAY PRODUCTS, BY CLASSES, 1935

Class	Quantity	Value	Quantity Stocks on hand Dec. 31, 1935
Common brick (M).....	93,435.4	\$778,086.94	63,367.6
Face brick (M).....	34,945.4	479,118.76	17,508.6
Hollow brick (M).....	2,778.8	53,916.50	680.1
Hollow building tile (Tons).....	46,624.8	198,119.68	34,057.1
Vitrified brick or block for paving (M).....	6,411	104,171.77	4,188.6
for other purposes (M).....	977	53,245.89	1,110.7
Drain tile (Tons).....	38,757.4	249,589.07	13,971.6
Fireclay products.....		750,284.42	
Refractory cement (Clay) (Tons).....	175	7,822.67	21
Clay sold, raw or prepared (etc.).....		160,429.10	
^a Other clay products (except Pottery).....		1,720,839.58	
Pottery.....		2,264,520.97	

^a Terra Cotta, sewer pipe, flue lining, wall coping, and non-clay refractories included under "Other clay products, except Pottery."

The production quantity, value, and stocks on hand of common brick, face brick, hollow building tile, and drain tile for the year 1935 are grouped by producing districts in Table 23. The counties in each district are as follows:

<i>District</i>	<i>Counties</i>
Chicago.....	Lake, Cook, and Will
Northern Illinois.....	Bureau, Fulton, Knox, LaSalle, Livingston, and Tazewell
Central and Western Illinois.....	Henry, Macon, Menard, and Sangamon
East St. Louis.....	Madison and St. Clair
Other.....	Other

In Table 23 those districts in which less than three producers reported are combined.

TABLE 23.—PRODUCTION OF CERTAIN TYPES OF CLAY PRODUCTS, BY DISTRICTS, 1935

District	Quantity (Thousands)	Value (Dollars)	Quantity Stocks on hand (Thousands)
Common Brick			
Chicago.....	68,099.3	504,080.50	48,762.3
Northern Illinois.....	11,079.4	122,869.84	5,712.5
Central and Western Illinois.....	3,142.6	32,441.60	4,678.4
East St. Louis.....	6,798.1	71,087.00	3,013.4
Other.....	4,316.0	47,608.00	1,192.0
Total.....	93,435.4	778,086.94	63,367.6
Face Brick			
Northern Illinois.....	14,656.4	223,440.53	6,681.9
Central and Western Illinois and East St. Louis.....	15,561.0	190,339.23	7,846.7
Other.....	4,728.0	65,339.00	2,998.0
Total.....	34,945.4	479,118.76	17,508.6
Hollow Building Tile			
	(Tons)		(Tons)
Northern Illinois.....	5,856.0	23,525.96	10,992.3
Central and Western Illinois and East St. Louis.....	17,421.8	66,778.09	3,705.3
Chicago and Other.....	23,347.0	107,815.63	19,359.5
Total.....	46,624.8	198,119.68	34,057.1
Drain Tile			
	(Tons)		(Tons)
Northern Illinois.....	16,913.9	116,770.71	2,533.9
Central and Western Illinois.....	6,745.0	45,762.12	2,208.0
East St. Louis and Other.....	15,098.5	87,056.24	9,229.7
Total.....	38,757.4	249,589.07	13,971.6

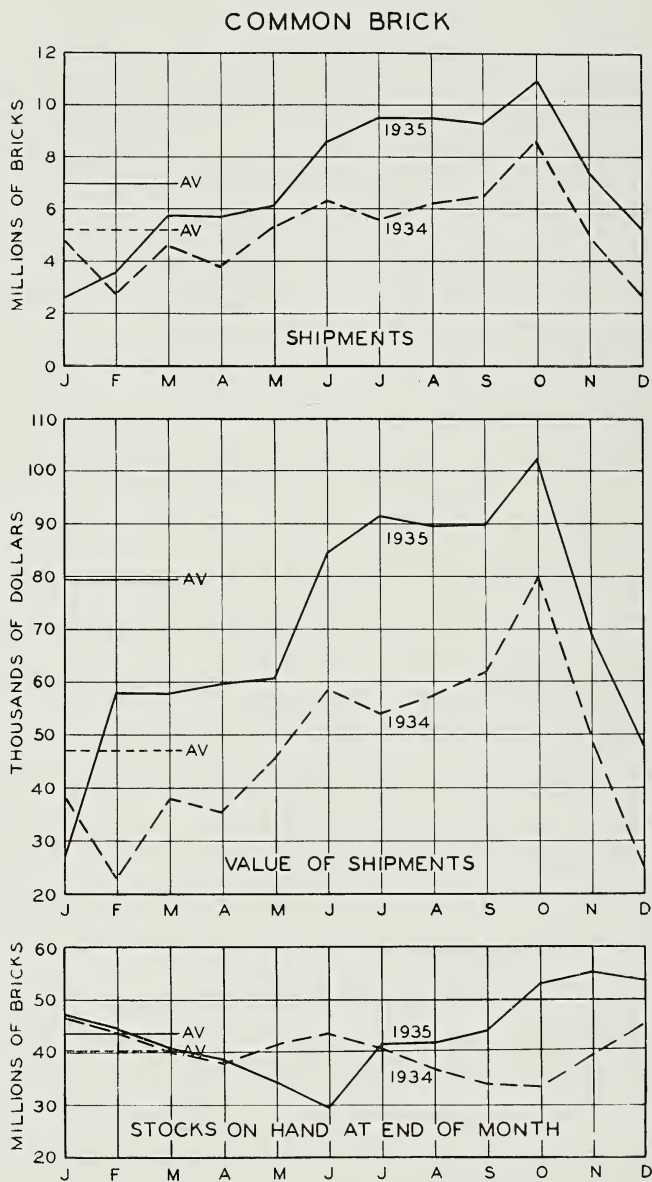


Fig. 2.—COMMON BRICK IN ILLINOIS—SHIPMENTS, VALUE OF SHIPMENTS, AND STOCKS ON HAND AT END OF MONTH, FOR 1934-1935.

Table 24 presents data compiled from the Bureau of Census statistics from selected identical plants for the years 1932 to 1935. Total shipments, value of shipments, monthly averages, average values per unit, and stocks on hand December 31 of each year are given for common brick, face brick, and hollow building tile.

TABLE 24.—SHIPMENTS OF COMMON BRICK, FACE BRICK, AND
HOLLOW BUILDING TILE IN ILLINOIS, 1932-1935^a

Year	SHIPMENTS		VALUE		Average value per Thousand	Stocks on hand at end of year Thous- ands
	Total Thousands	Average per month Thousands	Total Dollars	Average per month Dollars		
Common Brick						
1932.....	56,388	4,699	446,906	37,242	7.93	69,771
1933.....	51,011	4,251	403,813	33,651	7.92	58,993
1934.....	62,269	5,189	564,164	47,014	9.06	55,120
1935.....	84,085	7,007	835,775	69,648	9.94	63,283
Face Brick						
1932.....	32,439	2,703	464,398	38,700	14.31	46,668
1933.....	22,825	1,902	305,168	25,432	13.81	26,863
1934.....	24,657	2,055	409,532	34,128	16.61	23,281
1935.....	36,923	3,077	596,248	49,687	18.85	24,411
Hollow Building Tile						
1932.....	30,930	2,578	104,922	8,744	3.39	45,282
1933.....	16,585	1,382	65,615	5,468	3.96	39,519
1934.....	31,580	2,632	163,312	13,609	5.17	34,766
1935.....	21,978	1,832	131,370	10,948	5.98	28,757

^a Data from U. S. Bureau of Census.

In the year 1933 each item listed under common brick and face brick decreased in comparison to the corresponding figure for 1932. The greatest comparable decrease took place in face brick. Likewise, with the exception of stocks, each figure for these two types of brick increased in both 1934 and 1935, the 1935 totals in each case being greater than those of 1932. Not since 1932 has the total value of face brick shipments been greater than those of common brick, and it is yet lagging considerably.

A comparison of the data on hollow building tile with that of common and face brick gives quite a different picture. The trend in shipments and value of shipments in all three commodities is similar for the first three years, being downward in 1932 and upward in 1933, but in 1935 the tile trend falls again while the

brick trend rises very markedly. This may be in part due to a natural decrease in demand for tile in 1935 or to the steady increase in value per unit placed on

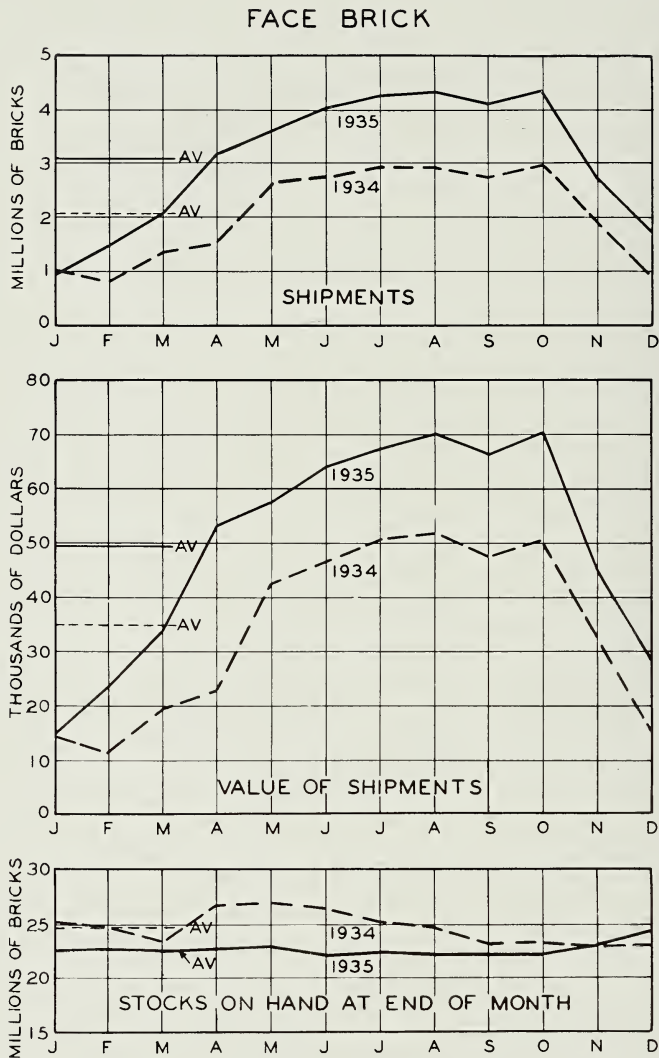


Fig. 3.—FACE BRICK IN ILLINOIS—SHIPMENTS, VALUE OF SHIPMENTS, AND STOCKS ON HAND AT END OF MONTH, 1934-1935.

hollow building tile each year since 1932. The average value for both kinds of brick fluctuated with demand during these years.

It is important to note that stocks in both common and face brick increased in 1935 for the first time. This suggests that heavy inventories have been reduced to a more normal level. Stocks of hollow building tile on hand necessarily continued to decrease in 1935. The stocks of tile on hand at the end of the year were still greater than the total shipped during 1935. However, the stocks have shrunk 37 per cent from the 1932 total.

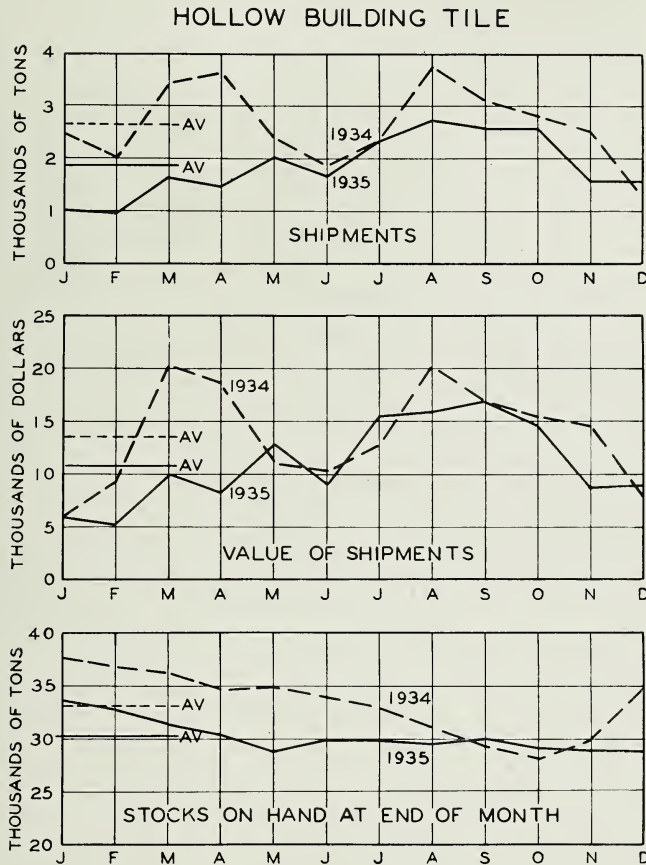


Fig. 4.—HOLLOW BUILDING TILE IN ILLINOIS—SHIPMENTS, VALUE OF SHIPMENTS, AND STOCKS ON HAND AT END OF MONTH, 1934-1935.

The trends of shipments by months during the years 1934 and 1935 are given for common brick, face brick, and hollow building tile in figures 2, 3, and 4. The monthly averages for each year are given for comparison.

The important part that the stocks on hand play in the economic picture is not the actual number or quantity but the relation of the quantity of stocks to the demand. The producer can determine the size of the stocks he should carry on

hand to meet emergencies only through past experience. Probably the most pertinent data available to judge future demands are shipments of the past year, with an analysis of the probable increase or decrease in demand for the coming months. Table 25 shows the relation of stocks on hand at the end of each year to the demand for that current year in terms of month's supplies on hand, December 31.

TABLE 25.—SUPPLY OF STOCKS ON HAND AT END OF YEAR, IN
TERMS OF MONTHS, 1932-1935

Year	Common Brick (Months)	Face Brick (Months)	Hollow Building Tile (Months)
1932.....	14.8	17.3	17.6
1933.....	13.9	14.1	28.6
1934.....	10.6	11.3	13.2
1935.....	9.0	7.9	15.7

The actual quantity of stocks on hand as seen in Table 24 was increased for both common and face brick in 1935. However, the ratio of these stocks to current demand has continued to decrease through 1935 and will continue to do so until this portion of the industry is stabilized. The stocks of hollow building tile on hand at the end of each year, as seen in Table 24, has in no way coincided with demand and at the present time is no doubt much larger than that necessary to meet adequately the current requirements.

Detailed statistics for the shipments of common brick, face brick, and hollow building tile during the year 1935 are given in Table 26. Similar tables are given for the years 1932, 1933, and 1934 in Illinois Geological Survey Report of Investigations 39.

TABLE 26.—SHIPMENTS OF COMMON BRICK, FACE BRICK, AND
HOLLOW BUILDING TILE IN ILLINOIS IN 1935

Month	Number of Plants	SHIPMENTS		Thousands stocks on hand at end of month
		Thousands	Value	
Common Brick ^a				
January.....	34	2,636	\$25,941	56,863
February.....	35	3,568	57,938	54,359
March.....	35	5,790	57,938	51,443
April.....	34	5,754	59,476	48,538
May.....	35	6,139	60,671	44,451
June.....	35	8,537	84,102	39,338
July.....	34	9,463	91,483	51,104
August.....	32	9,483	89,538	51,241
September.....	31	9,319	89,824	53,927
October.....	31	10,864	102,321	62,679
November.....	31	7,346	68,933	65,065
December.....	32	5,185	47,610	63,283
Face Brick ^a				
January.....	18	942	\$14,993	22,745
February.....	18	1,492	23,398	22,814
March.....	17	2,060	33,606	22,739
April.....	17	3,205	53,247	22,793
May.....	17	3,605	57,594	23,046
June.....	17	4,037	64,168	22,293
July.....	17	4,271	67,589	22,584
August.....	17	4,341	70,117	22,407
September.....	17	4,106	66,798	22,433
October.....	17	4,361	70,796	22,360
November.....	17	2,775	45,358	23,076
December.....	17	1,728	28,584	24,411
Hollow Building Tile ^a				
		(Tons)		(Tons)
January.....	16	1,001	\$ 5,993	33,593
February.....	16	929	5,353	32,856
March.....	15	1,613	9,996	31,484
April.....	15	1,476	8,266	30,404
May.....	15	2,054	12,743	28,764
June.....	15	1,648	9,006	29,937
July.....	15	2,308	15,502	29,814
August.....	15	2,718	15,749	29,562
September.....	15	2,560	16,766	30,090
October.....	15	2,568	14,614	29,091
November.....	15	1,555	8,607	28,827
December.....	15	1,548	8,775	28,757

^a Source: Monthly report on "Structural Clay Products," Bureau of Census.

A comparison of shipments of these three classes of clay products in Illinois are given, by totals, for the first six months of 1935 and 1936, as follows:

TABLE 27.—SHIPMENTS OF COMMON BRICK, FACE BRICK, AND HOLLOW BUILDING TILE IN ILLINOIS FOR SIX MONTHS, 1935-1936

Average Number of Plants Reporting		Shipments in Thousands		Value of Shipments		Stock on Hand June 30, in Thousands	
1935	1936	1935	1936	1935	1936	1935	1936
Common Brick							
35	32	32,424	66,388	\$347,066	\$649,317	39,338	60,083
Face Brick							
17	17	15,341	31,591	\$247,006	\$527,233	22,293	23,925
Hollow Building Tile							
15	15	(Tons) 8,721	20,032	\$ 51,357	\$109,576	(Tons) 29,937	35,333

PORTLAND CEMENT

Portland cement shipped from mills in Illinois in 1935 amounted to 3,273,-000 barrels. Value of the product was \$4,625,000 with a value per barrel increase to \$1.41. (Table 28). Consumption of Portland cement by months for 1933-1935 is shown in Table 29.

TABLE 28.—SHIPMENTS OF CEMENT, IN BARRELS, VALUE, AND CONSUMPTION IN ILLINOIS 1928-1935^a

Year	Shipments	Value	Average factory value per barrel	Consumption
1928.....	7,405,667	\$11,602,848	\$1.57	17,683,269
1929.....	7,738,208	11,134,538	1.44	13,490,520
1930.....	7,951,680	10,519,162	1.32	11,164,248
1931.....	6,425,909	5,342,446	0.83	7,925,435
1932.....	5,829,687	3,446,482	0.59	5,822,358
1933.....	4,193,048	4,607,335	1.08	5,281,216
1934.....	3,907,000	5,489,000	1.40	5,008,440
1935.....	3,273,000	4,625,000	1.41	4,932,873

^a United States Bureau of Mines, Monthly Cement Statement No. 177.

TABLE 29.—PORTLAND CEMENT CONSUMPTION IN ILLINOIS, 1933-1935
(In barrels)^a

Month	1933	1934	1935
January.....	71,367	133,420	133,855
February.....	115,629	99,658	159,240
March.....	125,846	183,486	304,977
April.....	171,203	386,683	352,243
May.....	177,861	671,643	414,792
June.....	347,314	557,475	460,779
July.....	1,124,429	512,159	675,717
August.....	996,408	545,571	701,896
September.....	881,269	546,926	627,998
October.....	665,137	736,326	613,827
November.....	295,027	476,070	304,021
December.....	309,726	158,940	183,527
Total.....	5,281,216	5,008,357	4,932,873

^a United States Bureau of Mines, Monthly Cement Statements.

FLUORSPAR¹

Fluorspar shipments from the Illinois-Kentucky area continued to increase in response to expanding needs of the steel industry.

Consumption of fluorspar at steel mills increased 19,700 short tons in 1935 compared with 1934, due to accelerated activity that brought the operating rate of the steel industry from 37 per cent of capacity in 1934 to 49 per cent in 1935. Both domestic producers and importers shared this increased business; in fact, total sales of fluorspar to the steel industry were the largest since 1930, and the sales by domestic producers exceeded those of any year since 1929.

Purchases of 12,225 tons of fluorspar by glass manufacturers in 1935 were the largest on record. Sales to enamel and hydrofluoric acid plants increased 1,800 and 400 tons, respectively, from 1934, and consumption of acid-grade fluorspar as a raw material in the manufacture of refrigerants was 61 per cent greater.

Total sales of fluorspar to consumers in the United States in 1935 were 137,867 short tons, of which 123,561 tons were from domestic mines and 16,306 tons were imported, compared with a total of 101,662 tons in 1934, of which 85,264 tons were from domestic mines and 16,398 tons were imported.

Despite the improved demand for fluorspar in 1935, the selling price by producers was lower than in 1934. For example, the average selling price of fluxing-gravel fluorspar dropped from \$15.28 a ton f.o.b. Illinois-Kentucky mines in 1934 to \$13.76 a ton in 1935. The average selling price of all grades declined from \$16.22 a short ton in 1934 to \$15.04 in 1935.

Other noteworthy developments in 1935 were the substantial reduction in the stocks of fluorspar in the hands of producers, the high level of shipments from Kentucky which have been exceeded only in 1918, 1928, and 1929, and the movement of fluorspar from Colorado to eastern markets.

Tables 30, 31, and 32 show the details of the shipments of fluorspar by States, by kinds, and by uses in 1934 and 1935.

¹ Data from U. S. Bureau of Mines, Minerals Yearbook, pp. 963-979.

TABLE 30.—FLUORSPAR SHIPPED FROM MINES IN ILLINOIS AND KENTUCKY
1934-1935

State	1934			1935		
	Short tons	Value		Short tons	Value	
		Total	Average		Total	Average
Illinois.....	33,234	\$567,396	\$17.07	44,120	\$685,794	\$15.54
Kentucky.....	43,163	690,990	16.01	68,679	1,017,451	14.81
Other states.....	9,389	133,019	.....	10,762	155,089	.....
Total.....	85,786	1,391,405	16.22	123,561	1,858,334	15.04

TABLE 31.—FLUORSPAR SHIPPED FROM MINES IN THE UNITED STATES,
1934-1935, BY KINDS

Kind	1934			1935		
	Short tons	Value		Short tons	Value	
		Total	Average		Total	Average
Gravel.....	74,249	\$1,121,974	\$15.11	105,280	\$1,452,733	\$13.80
Lump.....	3,101	60,135	19.39	5,268	101,578	19.28
Ground.....	8,436	209,296	24.81	13,013	304,023	23.36
Total.....	85,786	1,391,405	16.22	123,561	1,858,334	15.04

TABLE 32.—FLUORSPAR SHIPPED FROM MINES IN THE UNITED STATES,
1934-1935, BY USES

Use	1934			1935		
	Short tons	Value		Short tons	Value	
		Total	Average		Total	Average
Steel.....	70,672	\$1,061,864	\$15.03	100,988	\$1,390,357	\$13.77
Foundry.....	1,489	23,807	15.99	2,336	29,068	12.44
Glass.....	7,343	167,182	22.77	10,256	227,917	22.22
Enamel and vitrolite.....	2,590	67,849	26.20	4,087	100,686	24.64
Hydrofluoric acid and derivatives.....	1,666	35,708	21.43	3,333	74,732	22.42
Miscellaneous....	1,504	26,393	17.55	2,248	30,923	13.76
Exported.....	522	8,602	16.48	313	4,651	14.86
Total.....	85,786	1,391,405	16.22	123,561	1,858,334	15.04

Stocks at mines.—The stocks of fluorspar at mines or at shipping points on December 31, 1935, were 60,752 short tons, a decrease of 28 per cent. These stocks consisted of about 27,400 tons of crude fluorspar (calculated to be equivalent to 11,800 tons of ready-to-ship fluorspar) and 33,389 tons of ready-to-ship fluorspar. The substantial decrease (about 17,200 tons) in the stocks of ready-to-ship fluorspar in 1935 and the concurrent smaller decline of about 6,000 tons in the stocks of crude fluorspar are noteworthy.

Imports.—The total imports of fluorspar for consumption in the United States in 1935 were 16,340 short tons (10,578 tons containing more than 97 per cent and 5,762 tons containing not more than 97 per cent calcium fluoride) valued at \$170,049, compared with 16,705 tons (10,632 tons containing more than 97 per cent and 6,073 tons containing not more than 97 per cent calcium fluoride) valued at \$183,286 in 1934. The imports were equivalent to 13 per cent of the total shipments of domestic fluorspar in 1935 compared with 19 per cent in 1934.

About 33 per cent of the imports in 1935 was metallurgical-gravel fluorspar, 19 per cent ceramic-ground fluorspar, and 48 per cent acid (chiefly lump) fluorspar. The metallurgical-gravel fluorspar was imported from Spain and Germany, chiefly Spain; the ceramic-ground fluorspar was imported chiefly from Germany, followed in order by Spain and Italy; and the acid-grade fluorspar was imported chiefly from Germany, followed in order by the Union of South Africa and Spain.

Table 33, compiled from the records of the Bureau of Foreign and Domestic Commerce, shows the imports of fluorspar into the United States by countries in 1934 and 1935.

TABLE 33.—FLUORSPAR IMPORTED INTO THE UNITED STATES, 1934–1935, BY COUNTRIES^a

Country	1934		1935	
	Short tons	Value	Short tons	Value
Canada.....	187	\$ 2,962	1	\$ 14
China.....	112	990	.....	.....
Germany.....	8,224	98,565	9,843	119,275
Italy.....	60	587	55	589
Newfoundland.....	745	10,460	.....	.....
Spain.....	4,914	35,316	5,094	35,432
Union of South Africa.....	1,997	31,872	1,347	23,739
United Kingdom.....	466	2,534	.....	.....
Total.....	16,705	183,286	16,340	179,049

^a Compiled from records of Bureau of Foreign and Domestic Commerce.

Table 34, compiled from data furnished by importers to the Bureau of Mines, shows the quantities of imported fluorspar delivered to consumers in the United States in 1934 and 1935 and the selling price at tidewater (duty paid) irrespective of the year of importation into the United States; it differs from the preceding table, which shows the quantities received in the United States during 1934 and 1935. The quantities in this table are based on the actual outturn weight ascertained by sworn weighers and represent the weight on which duty was paid and the entries were liquidated.

TABLE 34.—IMPORTED FLUORSPAR DELIVERED TO CONSUMERS IN THE UNITED STATES IN 1934 AND 1935

Industry	1934			1935		
	Short Tons	Selling Price at Tidewater, Including Duty		Short Tons	Selling Price at Tidewater, Including Duty	
		Total	Average		Total	Average
Steel.....	5,394	\$100,830	\$18.69	5,702	\$102,635	\$18.00
Glass.....	1,257	36,120	29.74	1,969	49,803	25.29
Enamel.....	583	17,324	29.72	920	24,447	26.57
Hydrofluoric acid.	8,982	217,650	24.23	7,715	189,794	24.60
Cement.....	182	4,100	22.53	.....	.....	.....
Total.....	16,398	376,024	22.93	16,306	366,679	22.49

AGRICULTURAL LIMESTONE

Final returns from producers of agricultural limestone in Illinois and adjoining states show that Illinois farmers applied to their soil approximately 523,256 tons of limestone in 1935. This is a 51 per cent increase over the 1934 total consumption and is almost four times the amount used in the low year, 1932. Such an increase shows that the purchase of stone by farmers is returning rapidly to the level of pre-depression years. The following figures represent the approximate consumption of agricultural limestone in Illinois by years from 1930 to 1935.

TABLE 35.—AGRICULTURAL LIMESTONE CONSUMED
IN ILLINOIS, 1930-1935

YEAR	TONS
1930.....	811,000
1931.....	266,886
1932.....	132,995
1933.....	190,963
1934.....	346,141
1935.....	523,256

The most significant increase in limestone consumption was in those counties in the northeast, south, and southeastern parts of the State, Districts I and V as shown in figure 8. The very pronounced increase in District I in 1935 as shown in figure 5 is no doubt an exaggeration in part due to incomplete data for the past years.

Detailed statistics were received from Illinois producers and from producers in Indiana, Iowa, Missouri, and Wisconsin who ship agricultural limestone into Illinois. Information was also received from Farm Advisers in Illinois and from certain County Highway Engineers. Such cooperation has made the 1935 agricultural limestone data the most complete for any year to date.

The tonnage of agricultural limestone marketed in each county in Illinois during 1934 and 1935 is shown in Table 36. It has been necessary to estimate the consumption for certain counties, the figures for each representing a comparison of data received from both producers and farm advisers.

TABLE 36.—TONNAGE OF AGRICULTURAL LIMESTONE USED IN ILLINOIS DURING 1934 AND 1935

(Tons marketed in each county in Illinois)

County	1934 Total	1935		
		Produced in Illinois	Produced in other states	Total
Adams.....	7,587	5,194	.....	5,194
Alexander.....	0	55	.....	55
Bond ^a	1,769	6,146	134	6,280
Boone.....	1,060	0	.....	0
Brown.....	918	432	.....	432
Bureau ^a	1,046	2,964	36	3,000
Calhoun.....	0	0	.....	0
Carroll.....	0	128	.....	128
Cass ^a	592	936	.....	936
Champaign.....	4,185	3,435	96	3,531
Christian.....	3,060	3,911	.....	3,911
Clark.....	11,646	6,959	8,382	15,341
Clay.....	120	469	.....	469
Clinton.....	7,937	16,487	45	16,532
Coles.....	1,532	436	474	910
Cook.....	2,615	14,100	.....	14,100
Crawford.....	763	295	1,083	1,378
Cumberland.....	2,647	1,936	1,836	3,772
DeKalb.....	1,138	435	.....	435
DeWitt.....	2,709	1,649	.....	1,649
Douglas.....	2,177	1,601	1,119	2,720
DuPage.....	567	3,823	.....	3,823
Edgar.....	3,526	1,819	2,031	3,850
Edwards.....	1,379	948	358	1,306
Efingham.....	4,200	3,264	6,659	9,923
Fayette.....	1,079	2,997	998	3,995
Ford.....	3,689	2,297	.....	2,297
Franklin.....	2,547	3,364	.....	3,364
Fulton.....	2,732	1,520	315	1,835
Gallatin.....	134	0	.....	0
Greene ^a	11,046	8,739	.....	8,739
Grundy.....	1,483	904	.....	904
Hamilton.....	1,173	1,859	.....	1,859
Hancock.....	2,054	952	.....	952
Hardin.....	1,200	0	.....	0
Henderson.....	0	115	.....	115
Henry.....	8,889	5,327	3,248	8,575
Iroquois.....	5,641	2,033	2,180	4,213
Jackson.....	5,423	6,001	.....	6,001
Jasper.....	614	2,179	272	2,451
Jefferson ^a	1,301	2,930	228	3,158
Jersey ^a	5,326	5,884	.....	5,884
Jo Daviess ^a	102	8,000	.....	8,000
Johnson.....	1,500	1,680	.....	1,680
Kane.....	1,923	10,487	.....	10,487
Kankakee.....	433	3,272	.....	3,272
Kendall.....	2,687	1,214	.....	1,214
Knox.....	4,796	1,233	2,612	3,845
Lake.....	1,237	9,353	59	9,412
LaSalle.....	2,339	1,304	.....	1,304
Lawrence.....	1,524	446	1,789	2,235
Lee.....	614	87	61	148
Livingston.....	4,625	10,888	.....	10,888

TABLE 36.—TONNAGE OF AGRICULTURAL LIMESTONE USED IN ILLINOIS (*Concluded*)
(Tons marketed in each county in Illinois)

County	1934 Total	1935		
		Produced in Illinois	Produced in other states	Total
Logan.....	1,630	2,721	.....	2,721
McDonough.....	2,667	342	.....	342
McHenry.....	1,224	1,962	142	2,104
McLean.....	31,595	20,125	.....	20,125
Macon.....	3,345	2,291	289	2,580
Macoupin ^a	15,891	16,012	.....	16,012
Madison ^a	15,364	17,396	.....	17,396
Marion ^a	2,646	6,491	1,092	7,583
Marshall.....	972	2,886	.....	2,886
Mason.....	2,352	2,264	.....	2,264
Massac.....	0	53	.....	53
Menard.....	671	5,001	.....	5,001
Mercer.....	3,055	274	3,582	3,856
Monroe.....	16,521	9,592	.....	9,592
Montgomery ^a	3,236	5,365	.....	5,365
Morgan ^a	3,226	2,904	.....	2,904
Moultrie.....	449	230	162	392
Ogle ^a	0	4,000	.....	4,000
Peoria.....	5,670	4,617	605	5,222
Perry.....	4,250	10,200	.....	10,200
Piatt.....	3,324	2,802	88	2,890
Pike ^a	770	20,000	.....	20,000
Pope.....	1,260	116	.....	116
Pulaski.....	100	64	.....	64
Putnam.....	57	210	.....	210
Randolph ^a	16,521	15,167	235	15,402
Richland.....	414	909	900	1,809
Rock Island.....	3,616	5,282	1,333	6,615
St. Clair ^a	6,362	27,076	.....	27,076
Saline.....	6,186	1,003	.....	1,003
Sangamon ^a	4,122	5,764	.....	5,764
Schuyler ^a	170	513	.....	513
Scott ^a	268	226	.....	226
Shelby.....	1,420	2,936	495	3,431
Stark.....	1,303	582	822	1,404
Stephenson.....	900	198	.....	198
Tazewell.....	3,874	3,386	.....	3,386
Union.....	3,100	3,562	.....	3,562
Vermilion.....	2,436	2,021	391	2,412
Wabash.....	1,450	190	1,337	1,527
Warren.....	215	0	419	419
Washington ^a	11,852	13,223	7,867	21,090
Wayne.....	454	456	234	690
White.....	2,047	703	735	1,438
Whiteside.....	2,166	2,124	60	2,184
Will.....	4,031	58,280	.....	58,280
Williamson.....	1,915	1,958	.....	1,958
Winnebago.....	500	14	.....	14
Woodford.....	5,462	4,692	.....	4,692
County unknown.....	5,798	7,782	7,782
Total.....	346,141	468,453	54,803	523,256

^a Estimated.

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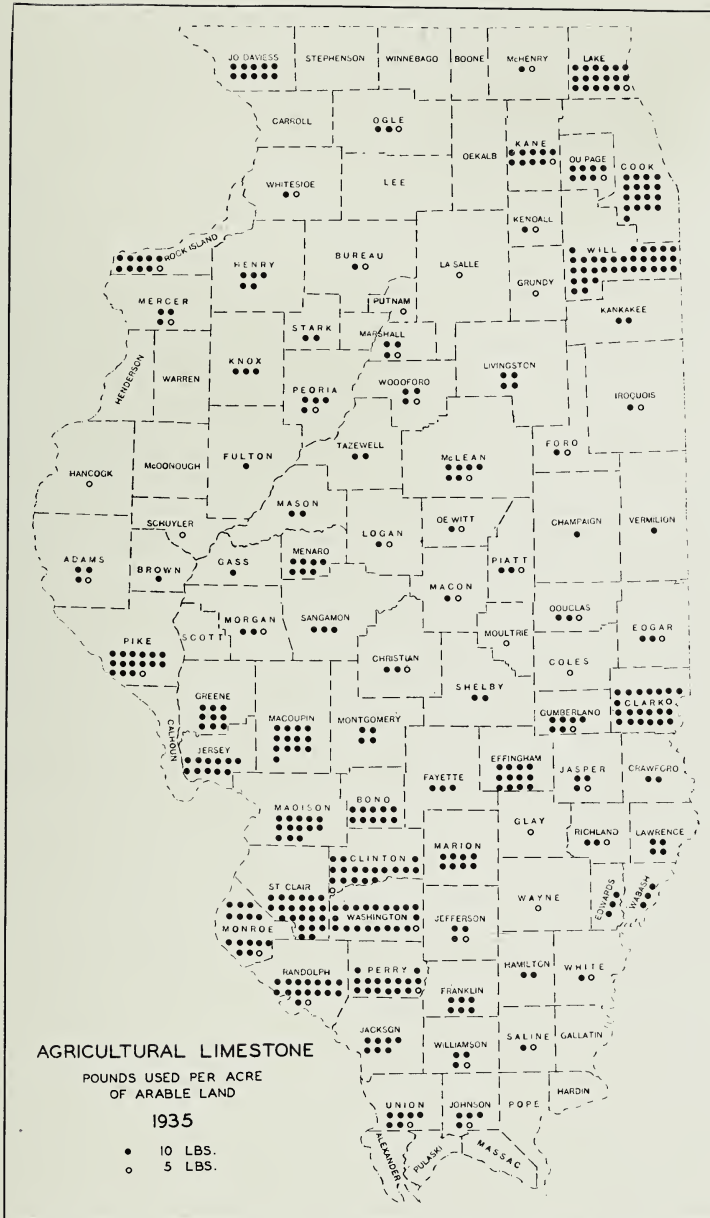


Figure 5 pictures the approximate total consumption of agricultural limestone in each county during 1935. The largest consuming areas are at once seen to be Districts I and IV and those counties in the western part of District V. Figure 6 shows the approximate number of pounds of limestone used per acre of arable land in each county in 1935. Detailed statistics of this data for the years 1933, 1934, and 1935 are given in Table 37.

TABLE 37.—CONSUMPTION OF LIMESTONE ON CROP LAND, BY COUNTIES
(In pounds per acre)

County	Farm land in crops (1929) Acres	POUNDS OF LIMESTONE PER ACRE			
		1933	1934	1935	1926-1930 average
Group 1					
Cook.....	164,478	10	32	172	28
DuPage.....	102,525	18	11	75	37
Ford.....	251,129	10	29	19	45
Grundy.....	197,112	7	20	9	31
Iroquois.....	557,286	13	20	15	34
Kane.....	211,385	13	18	99	35
Kankakee.....	302,664	4	3	22	30
Kendall.....	154,130	2	35	16	43
Lake.....	105,632	5	24	178	19
Livingston.....	546,648	15	17	40	47
McHenry.....	222,210	5	11	19	25
Will.....	348,255	1	23	334	25
Average for data available.....		8.6	20.2	83.2	33.3
Group 2					
Boone.....	119,416	1	18	(a)	90
Bureau.....	364,803	2	9	16	41
Carroll.....	160,827	(a)	(a)	(a)	68
DeKalb.....	306,290	7	7	3	55
Henry.....	352,861	20	50	50	85
JoDaviess.....	156,735	(a)	(a)	102	48
La Salle.....	518,450	2	9	5	35
Lee.....	324,847	(a)	4	1	74
Mercer.....	202,377	3	30	38	61
Ogle.....	312,720	(a)	(a)	26	48
Rock Island.....	133,975	41	54	99	118
Stephenson.....	216,596	(a)	8	2	52
Whiteside.....	295,856	5	15	15	101
Winnebago.....	189,201	(a)	5	(a)	180
Average for data available.....		10.1	19	32.5	75.4

^a Data incomplete.

TABLE 37.—CONSUMPTION OF LIMESTONE (*Continued*)

County	Farm land in crops (1929) Acres	POUNDS OF LIMESTONE PER ACRE			
		1933	1934	1935	1926-1930 average
Group 3					
Adams.....	277,310	(a)	55	37	59
Brown.....	80,291	7	23	11	108
Cass.....	146,012	24	8	13	91
Christian.....	319,031	12	19	25	46
Champaign.....	514,120	8	20	13	49
Clark.....	145,009	79	160	212	178
Coles.....	209,790	5	14	9	43
Cumberland.....	108,915	15	49	69	50
DeWitt.....	188,278	26	18	18	50
Douglas.....	205,598	6	21	26	49
Edgar.....	269,689	12	26	29	29
Fulton.....	300,163	5	20	12	27
Hancock.....	283,251	(a)	15	7	51
Henderson.....	191,106	(a)	(a)	1	49
Knox.....	274,189	8	35	31	46
Logan.....	304,439	2	11	18	36
Macon.....	272,508	11	25	17	33
Marshall.....	160,608	6	12	36	55
Mason.....	228,930	30	29	20	86
McDonough.....	230,365	2	23	3	50
McLean.....	587,468	14	108	69	75
Menard.....	141,309	9	9	71	39
Morgan.....	221,958	10	29	26	64
Moultrie.....	163,885	6	6	5	25
Peoria.....	216,423	16	52	48	75
Piatt.....	217,725	6	31	27	35
Pike.....	251,943	(a)	(a)	159	125
Putnam.....	59,772	8	2	7	78
Sangamon.....	368,786	7	22	31	45
Scott.....	91,619	9	6	3	116
Schuyler.....	138,184	7	2	7	36
Shelby.....	291,314	12	10	23	44
Stark.....	127,343	8	21	22	47
Tazewell.....	287,997	12	27	24	66
Vermilion.....	412,415	5	12	12	45
Warren.....	224,789	6	2	4	29
Woodford.....	238,169	14	46	39	93
Average for data available.....		12.3	27.7	32.0	60.0
Group 4					
Calhoun.....	71,970	(a)	(a)	(a)	52
Greene.....	181,258	15	122	91	151
Jersey.....	114,569	16	93	113	198
Macoupin.....	272,761	26	116	132	98
Madison.....	267,696	105	115	130	206
Monroe.....	128,509	171	257	149	419
Randolph.....	196,678	134	168	157	250
St. Clair.....	245,327	138	52	220	286
Average for data available.....		86.4	131.8	141.7	209.9

^a Data incomplete.

TABLE 37.—CONSUMPTION OF LIMESTONE(*Concluded*)

County	Farm land in crops (1929) Acres	POUNDS OF LIMESTONE PER ACRE			
		1933	1934	1935	1926-1930 average
Group 5					
Alexander.....	49,556	(a)	(a)	2	232
Bond.....	126,912	15	20	99	212
Clay.....	163,655	1	1	6	70
Clinton.....	188,070	58	84	176	238
Crawford.....	118,315	11	13	23	145
Edwards.....	84,133	26	33	31	83
Effingham.....	164,133	28	51	121	146
Fayette.....	237,164	6	9	34	71
Franklin.....	109,587	22	47	61	95
Gallatin.....	98,154	6	3	(a)	47
Hamilton.....	154,223	11	15	24	31
Hardin.....	30,345	20	80	(a)	15
Jackson.....	164,628	43	66	73	130
Jasper.....	170,030	4	7	39	36
Jefferson.....	168,303	7	16	38	68
Johnson.....	73,623	3	40	46	36
Lawrence.....	111,798	4	27	40	57
Marion.....	187,582	21	27	81	82
Massac.....	63,905	6	(a)	1	68
Montgomery.....	255,255	19	25	42	103
Perry.....	132,068	33	64	155	123
Pope.....	69,469	10	36	(a)	23
Pulaski.....	59,876	(a)	3	2	67
Richland.....	128,237	6	6	28	61
Saline.....	115,918	53	107	18	43
Union.....	105,293	75	59	68	121
Wabash.....	91,773	14	32	33	71
Washington.....	214,242	154	110	197	196
Wayne.....	236,695	2	4	6	20
White.....	182,452	13	22	16	75
Williamson.....	111,266	24	34	35	64
Average for data available.....		23.9	35.9	53.4	91.2

^a Data incomplete.

The trend of average consumption of agricultural limestone on crop lands, in pounds per acre, for the years 1926 to 1935 are given by districts in figure 7. This chart shows the more erratic average consumption of the southern Districts IV and V. The depression decrease in consumption began in 1930 in these two areas, while the northern areas did not decline to a marked degree until 1931. Since 1932 all five districts have shown an increase in the amount of stone applied per acre.

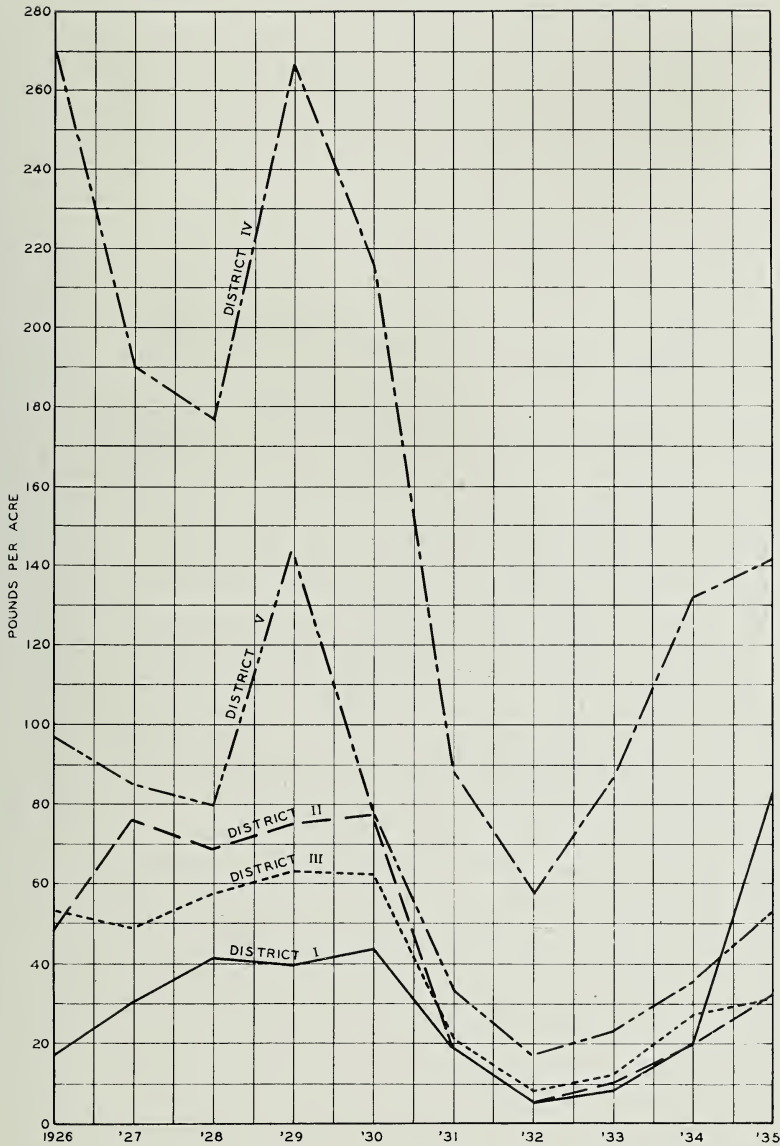


Fig. 7.—AVERAGE CONSUMPTION OF LIMESTONE ON CROP LANDS, IN POUNDS PER ACRE, BY DISTRICTS (SEE FIG. 8), 1926-1935.

The percentage of the total consumption in 1935 of limestone that was brought into Illinois from outside sources decreased from the 1934 figure (Table 38). Of this imported stone, 70 per cent came from Indiana and about 29 per cent from Iowa, only a minor amount coming from Missouri and Wisconsin.

TABLE 38.—AGRICULTURAL LIMESTONE PRODUCED IN OTHER STATES AND MARKETING IN ILLINOIS, 1931-1935
(In tons)

Year	Tons consumed from outside producers	Per cent of total consumption
1931.....	31,160.55	11.6
1932.....	15,231.	11.5
1933.....	12,845.	6.7
1934.....	56,095.	16.2
1935.....	54,803.	10.5

Although the total amount of agricultural limestone produced in other states and marketed in Illinois was less in 1935 than in 1934, this total is yet about three and one-half times the amount of limestone produced in Illinois and marketed in other states, as given in Table 39.

Table 39 shows the trend of Illinois limestone marketed in other states from 1931 to 1935. The yearly total has increased for the past three years but has not as yet reached the 1931 level of almost 17,000 tons.

TABLE 39.—AGRICULTURAL LIMESTONE PRODUCED IN ILLINOIS AND MARKETING IN OTHER STATES, 1931-1935
(In tons)

Year	Wis.	Iowa	Mo.	Ky.	Ind.	Mich.	Tenn.	Total
1931.....	650	.....	37	500	9,570	4,764	1,450	16,971
1932.....	.....	.....	263	.....	3,311	850	683	5,107
1933.....	.....	62	80	41	5,299	421	730	6,633
1934.....	85	65	2,232	.....	9,093	1,546	238	13,259
1935.....	67	1	130	32	10,102	4,135	1,095	15,562

OTHER NON-METALLIC PRODUCTS

The distribution and trends of production from 1933 to 1935 of structural non-metallic materials, by districts, are shown in tables 40 and 41. The districts may be identified by reference to figure 8.

Road building has been one of the major outlets for sand and gravel in the past several years. The sharp decline in building activity which began in 1927 and continued until 1934 not only reduced the market demand for these materials, but increased their dependence upon highway construction and other public works.

The market for limestone was similarly affected by the slump in building activity but, in the case of this material, a substantial market outlet is maintained in the agricultural limestone business. A close study of probable future trends in private construction as well as an analysis of future highway and public works programs are eventual in order to evaluate the future market outlook for these two groups of non-metallic minerals.

TABLE 40.—PRODUCTION OF SAND AND GRAVEL IN ILLINOIS BY DISTRICTS, 1933-1935

District Number (See Fig. 8)	1933 ^a		1934 ^a		1935 ^{a c}	
	Tons	Value	Tons	Value	Tons	Value
Structural Sand						
I, II.....	242,395	\$114,680	152,254	\$ 61,102	506,158	\$194,020
III.....	123,767	58,830	124,174	62,236	215,725	80,560
IV.....	162,989	86,923	149,003	86,760	187,012	98,855
V.....	170,774	57,446	174,142	88,119	129,069	73,657
VI.....	24,443	7,973	6,529	4,206	28,908	17,867
Paving and Roadmaking Sand						
I, II.....	373,432	165,393	468,029	138,252	182,713	71,707
III.....	114,351	58,522	90,399	45,296	102,235	40,263
IV.....	311,061	156,236	257,360	125,761	369,122	152,673
V.....	191,587	60,341	129,084	63,687	138,000	77,100
VI.....	94,677	46,970	69,833	46,736	36,830	24,768
Structural Gravel						
I, II.....	246,330	122,369	267,251	113,741	749,716	318,737
III.....	124,107	62,809	151,172	91,423	230,936	113,692
IV.....	187,030	112,679	169,700	100,462	279,312	158,577
V.....	(b)	(b)	(b)	(b)	(b)	(b)
VI.....	15,774	10,507	9,986	5,561	42,704	24,063
Paving and Roadmaking Gravel						
I, II.....	730,143	336,305	632,601	227,890	283,136	127,332
III.....	215,251	110,171	228,104	112,166	418,435	181,198
IV.....	598,578	308,790	350,220	181,942	577,977	256,335
V.....	(b)	(b)	(b)	(b)	(b)	(b)
VI.....	104,819	70,333	80,263	58,604	72,446	36,536
Railroad Ballast Sand and Gravel						
I, II.....	246,640	102,784	233,500	79,556	783,917	226,004
III.....	16,660	8,290	(b)	(b)	25,480	10,527
IV.....	116,540	43,966	40,654	22,237	57,284	27,706
V.....	(b)	(b)	(b)	(b)	(b)	(b)
VI.....	(b)	(b)	(b)	(b)	(b)	(b)
Other Sand and Gravel						
I, II.....	24,711	8,430	172,107	85,624	11,429	5,374
III.....	776,302	959,725	942,815	1,177,005	1,137,295	1,607,055
IV.....	28,762	21,836	20,028	22,699	49,502	32,603
V.....	(b)	(b)	(b)	(b)	(b)	(b)
VI.....	37,517	15,949	54,719	30,428	73,640	48,452
Total Sand and Gravel						
I, II.....	1,862,651	852,481	1,925,742	706,165	2,517,882	961,194
III.....	1,370,438	1,258,347	1,554,797	1,501,320	2,130,106	2,033,295
IV.....	1,404,960	730,430	1,085,820	591,536	1,520,209	726,749
V.....	379,462	130,998	344,680	170,823	349,820	175,971
VI.....	299,274	161,189	248,428	157,702	294,888	168,994
Illinois.....	5,316,784	\$3,133,445	5,159,467	\$3,127,546	6,812,905	\$4,066,203

^a Commercial producers only.^c Preliminary figures. See final totals in Table 1, p. 8. Final figures for separate districts not available.

TABLE 41.—PRODUCTION OF LIMESTONE IN ILLINOIS BY DISTRICTS, 1933-1935

District Number (See Fig. 8)	1933 ^a		1934 ^a		1935 ^{a c}	
	Tons	Value	Tons	Value	Tons	Value
Road Metal and Concrete						
I.....	702,241	\$403,662	1,102,415	\$693,510	1,189,779	\$661,830
II.....	410,816	290,973	515,687	370,156	364,088	262,977
III.....	45,142	36,000	119,533	109,939	146,578	112,702
IV.....	47,563	51,855	183,668	189,177	88,424	86,176
V.....	462,142	334,401	641,903	502,272	659,205	567,097
VI.....	91,582	84,647	104,036	98,349	68,420	51,386
Railroad Ballast						
I.....	(b)	(b)	96,467	51,234	125,872	62,835
II.....	64,753	47,693	119,648	89,633	227,764	167,646
III.....						
IV.....						
V.....	(b)	(b)	(b)	(b)	(b)	(b)
VI.....	(b)	(b)	(b)	(b)		
Agricultural Limestone						
I.....	36,750	22,350	48,400	30,650	34,055	15,858
II.....	40,812	22,279	76,600	48,661	55,753	34,591
III.....	9,903	10,875	10,824	9,173	14,154	11,366
IV.....	14,621	17,434	59,543	47,208	20,369	24,895
V.....	104,818	75,651	223,596	131,267	166,084	114,917
VI.....	14,346	12,533	29,845	24,802	29,665	20,077
Flux						
I.....	130,800	71,880	251,800	142,250	332,025	169,802
II.....						
III.....						
IV.....	(b)	(b)	1,088	1,584	(b)	(b)
V.....	(b)	(b)	(b)	(b)	5,079	6,429
VI.....						
Rubble and Rip Rap						
I.....	19,450	19,200	(b)	(b)	(b)	(b)
II.....	(b)	(b)	(b)	(b)	15,257	16,554
III.....	(b)	(b)	(b)	(b)		
IV.....	(b)	(b)	25,186	15,258	(b)	(b)
V.....	84,880	89,618	124,507	122,876	75,504	72,804
VI.....	(b)	(b)	(b)	(b)	(b)	(b)
Miscellaneous Limestone						
I.....	(b)	(b)	(b)	(b)	65,365	68,226
II.....	(b)	(b)	(b)	(b)	25,515	33,119
III.....	(b)	(b)	(b)	(b)	(b)	(b)
IV.....	(b)	(b)	8,949	25,321	24,029	49,521
V.....	9,774	37,544	7,296	26,470	131,891	155,386
VI.....						
Total Limestone						
I.....	954,541	557,492	1,618,389	1,029,048	1,864,057	1,101,946
II.....	523,362	355,328	718,100	518,873	688,377	514,887
III.....	55,725	49,450	131,627	126,624	164,392	126,522
IV.....	70,987	94,457	278,434	278,548	135,391	163,580
V.....	682,767	551,580	1,013,370	796,724	1,073,773	943,724
VI.....	109,979	100,943	141,640	131,834	101,848	76,722
Illinois.....	2,397,361	\$1,709,250	3,901,560	\$2,881,651	4,027,838	\$2,927,381

^a Commercial producers only.^b Concealed in total; less than three producers.^c Preliminary.

